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THE FOLLOWING READINGS WILL BE DISTRIBUTED SEPARATELY:

- T-3, R-D Cordesman, Anthony J. "The Western Naval Threat to Soviet Military Dominance:A Soviet Assessment." ARMED FORCES JOURNAL INTERNATIONAL, April 1983: pp. 45-46, 48-50, 54, 56-57, 60, 62-64, 66-67, 69, 73, 76, 78, 80,82, 91-92, 94-95, 97.
- T-6, R-F Kennedy, Paul M. "Stalemate and Strain." THE RISE AND FALL OF BRITISH NAVAL MASTERY, NY: Scribner, 1976: pp. 239-265(Chapter 9).
- T-8, R-A Hough, Richard. THE GREAT WAR AT SEA, 1914-1918. NY: Oxford University Press 1983: pp. 144-168.

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3 The Relevance of Sea-Power

What is the objective in naval warfare if command of the sea
cannot be achieved?

Rosinski¹

Before attempting to examine the prospective utility to Britain of the Royal Navy it seems desirable to consider briefly the general relevance of sea-power in a world that has undergone profound changes, political as well as technological, in the thirty-six years – the longest period in modern history – that have elapsed since two fleets last met in naval battle.

In doing so one temptation must regretfully be set aside. Space is lacking to discuss the argument, skilfully deployed in Chapter 7 of Paul Kennedy's admirable and often quoted *Rise and Fall of British Naval Mastery*, that a secular and adverse change has occurred in the relationship between sea power and land power. Two excuses may be advanced. First, Kennedy's argument is directed more to the British dilemma, which will be considered later, than to the general principle in question here. Secondly, as the legendary Chinese said of the French Revolution, it is perhaps too soon to judge. What is thirty-six years? As long as the two Super-Powers continue to spend more than ever before on their navies, the concept of sea-power must still deserve some thought on its maritime merits.

Sea-power has been very frequently and variously described, but Roskill's definition is concise:

The function of maritime power is to win and keep control of the sea for one's own use, and to deny such control to one's adversaries.²

Here 'control' is employed as the equivalent of the older 'command of the sea' which, so Corbett declared, 'means nothing but the control of maritime communications'.³ In modern American usage, however, 'sea control' is often contrasted, as a separate naval mission, with the projection of naval power ashore. This is, if not a distinction without a difference, perhaps a juxtaposition of the whole with one of its parts. As Admiral Holloway pointed out, when Chief of Naval Operations in the United States, sea control is 'a prerequisite of all other naval tasks and most sustained operations by the general purpose forces of other services'.⁴ It thus seems preferable, at least at the outset of the argument, to follow Roskill in treating control as a condition for using the sea.

This is a classical conception, primarily applicable to war and to nations aspiring to naval superiority, but capable of extension for other purposes. This process has to start with the reminder that, even in the light of historical experience and without considering the impact of recent developments, neither control nor its denial can reasonably be expected to prove complete, permanent or universal. It has often happened, whether in the seventeenth century or for much of the Second World War, that control has remained in dispute. Even when one fleet has established a clear ascendancy, this has often not been extended to all uses of the sea. In the Revolutionary and Napoleonic Wars, when British sea control reached its zenith, the depredations of enemy commerce-raiders were always substantial, even if convoy made them tolerable. In the First World War the U-boat campaign undermined British naval strategy and threatened actual defeat. The time taken by the US Navy to establish control of the Pacific during the Second World War was enough to permit the emergence of fundamental and lasting political changes in most of the limitrophe countries. The interruption of control, even for brief periods, has often been critical. In 1940 forty-eight hours of aberration by the Royal Navy sealed the fate of Norway. Finally, there are usually some seas – the Baltic in both world wars – in which the strongest navy does not even attempt to win control.

These inevitable imperfections of sea control are often aggravated by mere human error – Admiral Nagumo at Midway, for instance. Nevertheless they do not invalidate the concept: they illustrate the difficulty of its application. This has to depend on the resources available, the nature of the conflict and the priority attaching to the particular uses of the sea which it is intended either to protect or to deny. It is the first of these factors that has received most attention and traditional theory assumed that sea control and ultimate victory could be expected to reward the stronger navy. Even the experience of the two

world wars is often interpreted in terms of British failure to provide matériel of the right kind and in sufficient quantity. Undoubtedly the lack of secure bases (in both wars), the deficiencies of naval construction and armament, the utterly inadequate provisions for defence against mines (those pathetic sweepers in the Dardanelles), submarines or aircraft can be attributed both to technical blunders and to resource constraints. But the disappointing results of attempts at sea control or denial, together with some of the deficiencies in matériel, had a more fundamental cause in prior misconceptions of the nature of the coming conflict and of the strategy required to meet it.

Before the First World War, for instance, neither the British nor the German Navy could seriously complain that their demands had been denied by their respective politicians. But the Germans had provoked the British into war by building a battle-fleet for which they could, in the event, devise no strategic rôle. Its deterrent function was not merely a political failure, but a boomerang. When war came, the close blockade it was intended to break, once attrition had reduced the superiority of the British fleet, did not materialise. The distant blockade remained beyond German reach and was ultimately effective. Yet the British neither foresaw the German counter (which might have been much more devastating without the wasted expenditure on the High Seas Fleet) of a submarine war on trade nor, until the eleventh hour, reacted by adopting the classical expedient of convoy and escort.

Two fortuitous events transformed, for Britain, the character of the Second World War and obscured the extent to which strategic misconceptions were responsible for British unreadiness for any kind of conflict in 1939. The German invasion of the Soviet Union and the Japanese attack on Pearl Harbor provided Britain with allies more powerful than herself and created conditions in which the British army and, more dubiously, Bomber Command could make an important contribution to the defeat of Germany. The initial continental commitment and the bombing offensive seemed retrospectively – it was nearly posthumously – justified. Yet neither the expeditionary force nor the long-range bombers came near achieving the original objectives of deterring Germany from war and preventing her conquest of Europe. The continent was lost and with it substantial British forces. What is more, the diversion, before and during the war, of resources to these two unproductive tasks left too little to provide sufficient ships and aircraft of the right kind to ensure the defence of the British Isles and their seaborne communications. If Britain was neither invaded in 1940 nor starved in subsequent years, it was in spite of British strategy, not because of it.

It would be unconvincing to explore the hypothetical consequences of the adoption, in the early thirties, of a maritime strategy intended to ensure the defence of Britain, even to keep her in a state of peace, until such time as a change in the international situation offered a real prospect, which did not exist in 1939, of actually defeating Germany. This alternative strategy of insuring against a British defeat was rejected in favour of gambling on the chances of deterrence and ultimate victory. Fortune favoured the reckless decision and it can never be proved that the two options were mutually exclusive or that the first offered rather better prospects than the second. The possibility nevertheless deserves to be remembered, as does the subordinate rôle actually allotted to British sea-power, by anyone tempted to invoke past precedent as a guide to future choice. Naturally the governing factor will again be the political objective, which has to determine the general strategy, and the priority allotted within that strategy, to sea control or sea denial. There is nothing eternal or immutable about British strategic objectives and even for an island-state these two expedients do not have the same value in every conflict.

Nor are they necessarily exercised for the same purposes. It is the nature of the conflict which decides the relative importance of using the sea oneself or denying it to adversaries, of distant waters or the Narrow Seas, of the immediate outcome or an ultimate decision. In 1588, in 1688 and in 1940 what mattered was to deny the use of the Channel to an enemy invasion. Failure was irredeemable. On the other hand, German control of the Channel for the return of their warships from Brest in February 1942 merely humiliated the British without affecting the outcome of the war.

This discrimination between those uses of the sea, whether by oneself or the enemy, which can be decisive and those which are not, is inadequately reflected in traditional theory. This tended to follow Mahan in regarding command of the sea as in itself a sufficient objective and one to be attained by

the possession of that overbearing power on the sea which drives the enemy's flag from it, or allows it to appear only as a fugitive.⁵

Corbett, for instance, argued that:

A plan of war which has the destruction of trade for its primary object implies in the party using it an inferiority at sea. Had he superiority, his object would be to convert that superiority to a working command by battle or blockade.⁶

This is an interesting example of putting the cart before the horse, destruction of trade being rejected, not on its merits as a form of sea denial, but as an attribute of an 'inferior' (the word has moral overtones) navy. Admittedly, Corbett did not believe that war on trade would be effective: 'no Power will incur the odium of sinking a ship with all hands'⁷ (again a moral judgment), but only Fisher dissented and British naval strategy in the First World War did aim at 'a working command by battle or blockade' without realising, until it was almost too late, that the imperfections of command could critically affect the outcome of the war.

The primacy for naval strategy of the priority attaching to particular uses of the sea emerges even more clearly from a comparison of the different campaigns of the Second World War. For Britain the mortal issue, apart from the threat of invasion during the summer of 1940, was the defence of her seaborne trade against submarines. In the Pacific the Americans and Japanese were almost exclusively concerned with the use of the sea for amphibious operations and aircraft carriers were the decisive factor. In the Mediterranean, which was essentially a side-show, the sea was primarily required for the logistic support of armies, whose ability to retain airfields for shore-based aircraft often did as much as navies to decide control of the sea.

The different ways in which these three campaigns were fought cannot be explained as reflections of the strategies natural to either a superior or an inferior fleet. The successful American submarine war on Japanese trade, for instance, followed rather than preceded the victories which established American naval superiority. These were different kinds of conflict in which discrepant objectives had to be pursued by methods appropriate to the specific use of the particular sea it was desired either to protect or to deny. Any more general command of the sea was the product of success rather than the prior condition of its attainment.

To some extent this need to specify functions has always existed, for no kind of power has any absolute value: it is merely the capacity to apply force about a given point and varies with the nature of that point. Trafalgar made the invasion of Britain impossible: it did not prevent Austerlitz. Nevertheless the need to specify functions has increased as the autonomy of sea power has declined. When based on the virtual invulnerability of a superior fleet, that autonomy meant, for an island-state, immunity at home and the ability to limit the extent of intervention abroad. In practice, of course, such intervention was not always limited and it was often unsuccessful, but the strategic choice was Britain's.

The first half of the twentieth century eroded that autonomy, as mines, torpedoes, submarines and aircraft challenged the invulnerability of the superior fleet. Whether the ideal fleet need have become quite as vulnerable as some actual fleets proved to be is debatable, but irrelevant, for the second half of the century introduced a qualitative change in the conditions of warfare that has so far proved irreversible. The advent of inter-continental missiles has destroyed the ability of the strongest navy, however skilled in anti-submarine operations and mine-hunting, whatever the extent of its support from seaborne or land-based aircraft, to guarantee the immunity of the homeland. It is no longer true that 'he that commands the sea is at great liberty, and may take as much and as little of the war as he will'.⁸

Naturally, even thermonuclear power is not an absolute and its relativities may conceivably continue to exclude its use. But its mere existence has profoundly modified the concepts of sea control or denial and could do so again if it ever became possible to locate and track submarines with sufficient accuracy to offer a reliable prospect of destroying them before they could launch their missiles. This might then emerge as the paramount use of the sea.

Even today, and at lesser levels of conflict, technological and political changes have greatly modified the conditions in which sea power can be exercised. More sophisticated forms of combat, for instance, have demanded greater specialisation in the functions of warships. As late as the Second World War destroyers could and did perform almost any task: hunt submarines or surface craft, escort convoys or capital ships, bombard the shore, land or evacuate troops, attack battleships. No single ship is equally versatile today.

The Americans prefer to employ a task force even for the low-level operations of violent peace and, in the view of some competent foreign observers, concentration on anti-submarine warfare has left the entire Royal Navy with a much reduced capacity for other kinds of combat. The difficulty and expense of combining the various weapons systems required to meet different forms of attack tend to favour sea denial at the expense of sea control. The commander who attempts denial can now add to the traditional advantages of selecting time, place and target that of the choice of weapons. Even the United States, who have contrived to retain a large, general purpose navy, can scarcely be expected to concentrate a balanced carrier task force – and nothing less could be expected to defeat all forms of attack – at every vulnerable point in a system of general sea control.⁹ Nor is mere sophistication of equipment any guarantee of effectiveness, as the Royal Navy learned from the

bumping contest between their modern frigates and the primitive Icelandic gunboats. Naval force has to be appropriate to the task in hand. Admirals have always had to worry that the only ship available might lack the armament or the speed or the protection or the endurance needed for the job: now they also have to wonder whether the ship is too valuable to be risked. Technical specialisation has only increased the need to predict the type of conflict and to specify those uses of the sea which most require either protection or denial.

It is easy to multiply illustrations of the incidence of change on the conditions of naval operations. This is a continuing, an accelerating and, worst of all, an ambiguous process, particularly ambiguous, because it is necessarily based on speculation in the absence of relevant combat experience. Satellite observation, for instance, has exposed the trackless wastes of the ocean to scrutiny. Surface warships can no longer expect their whereabouts to be veiled in uncertainty, nor count on surprise for their appearance. Yet nuclear power has enhanced these attributes in the true submarine. Endurance has been expensively increased in certain warships paradoxically armed only for 'the battle of the first salvo'. The *KIROV* is generally admired, but Western observers are puzzled to define her function. The hierarchy of warships – which can expect to sink which and in what circumstances – is more than obscure and nobody can produce a convincing scenario for a fleet action. Time, once the ally of sea-power in the exercise of its slow, cumulative, autonomous pressure, now seems captive to the foreseeable exigencies of land warfare and of escalation to nuclear conflict. Unprecedented resources for the projection of naval power against the shore are now liable to encounter cheaper means of resistance and, in time of nominal peace, new political obstacles.

The pace and extent of change have focussed the attention of analysts and naval officers alike on the significance of technical innovation; on the trends in naval construction; on the mounting cost of both; on the study of deployments and manoeuvres; on the analysis of political constraints. If so much research seems to have led to few positive conclusions, the cause may lie in the inadequate response of the strategists. The onset of naval change – iron for wood, steam for sail, breech-loading for muzzle-loading – was the prelude to a seminal era of strategic thought concerning the nature of sea-power, the purpose of naval warfare and the proper objectives of particular navies. Not all this thinking was fruitful – least of all in its impact on naval officers – and the ingenious ideas of Grand Admiral Tirpitz proved an international disaster, but the intellectual foundations laid in the decades before the

First World War have since received insufficient addition, let alone challenge. Between the wars the new doctrines of air-power and the armoured Blitzkrieg found their only naval parallel in Japan and, since the turn of the century, strategists have been so preoccupied by nuclear weapons that the very word 'strategic' has lost its sense.

As a result both of the forces of change and of relative neglect of what were once termed the more 'sublime' aspects of naval thought, contemporary notions of naval strategy lack the clarity and the sense of purpose which Mahan and Corbett sought to impart. Earlier concepts have gradually become distorted without necessarily being discarded or replaced. A case in point is control or command of the sea. Admiral Holloway seemed to give it no less primacy than the classical writers, even if he added that sea denial was cheaper. Yet Admiral Turner, one of the most thoughtful senior American naval officers, argued in 1974 that the objective should be 'realistic control in limited areas and for limited periods of time'. He contended – and nothing in the unfolding balance of naval strength has since appeared to refute his view – that 'it is no longer conceivable, except in the most limited sense, to totally control the seas for one's own use or to totally deny them to an enemy'.¹⁰

His words found a Norwegian echo at the following year's conference of the International Institute for Strategic Studies: 'The term "sea control" today connotes control in limited areas for limited periods of time . . .'.¹¹ As Soviet doctrine has long rejected the idea of command of the sea, Admiral of the Fleet Sergei Gorshkov is unlikely to disagree. Indeed, McCwire quotes him as defining a rather similar objective: 'to create a situation whereby the enemy is either paralysed or constrained in his actions, or weakened, and thereby hampered from interfering with our execution of a given operation, or the discharge of our operational tasks'.¹² Admiral Eberle of the Royal Navy made no significant departure from this consensus, when he declared, also in 1975:

I am quite clear that naval force is to establish control over certain sea areas. The first sea area that it is necessary in the national interest to establish control over is one's own backyard.¹³

There is thus contemporary authority, quite apart from the experience of two world wars and the indications of the present naval balance, for the proposition that sea control is an objective limited in both time and space. But is this any more the concept advanced by Mahan and Corbett, the achievement of the Revolutionary and Napoleonic Wars, the conceivable purpose of the Royal Navy in the First World War? The

command of the sea, with trifling exceptions, is one thing as a prize from which all else flows. It is quite another as a transitory and local triumph. The difference emerges between an intrinsic good and the means to a particular end, the general goal of naval strategy and a tactical expedient.

This is more than a philosophical distinction. The old doctrine, as this was actually understood, not always as it was preached, often assumed practical importance, not only in determining the naval share in the general strategy, but also in influencing tactical decisions. If command of the sea is attainable and the supreme objective, admirals may give priority over other tasks to the destruction of the enemy fleet or to the conservation of their own. Such considerations have sometimes led, even if they were not the only factors, to the abandonment of convoys or allowed transports to reach their destination. If a dominant strategic principle exists, it must be expected to influence difficult choices made in haste. If the demotion of sea control is once thoroughly assimilated into the working doctrine of naval officers, this must produce a major change in one of the preconceptions with which they approach the increasingly rapid decisions likely to be required in future conflicts.

This change depends on more than the naval balance. Naturally it is significant that the United States Navy, after some heart-searching among their principal commanders, no longer claim an assured margin of superiority over their Soviet rivals, but that could doubtless be remedied. What is past praying for is the order of magnitude ascendancy needed to offset the inherent advantages, which have been growing all this century, of sea denial over sea control. At sea it is the defence that needs the massive superiority once demanded of an offensive on land. The United States Secretary of Defense may have declared, as recently as 1978, that

in the event of a major emergency, we would want to be able to provide sea control forces sufficient to maintain our lines of communication in the Mediterranean, the Atlantic and the Pacific¹⁴

but this is not an immediately attainable objective in war. The United States Navy are thinking in terms of sequential operations, in which naval forces 'surge' into one sea area, fight a campaign for control and, so it is hoped, move on to the next. Even assuming the utmost success – and the enemy may have his own views about where and when to accept battle – this could be a long process. Will it be concluded, will general sea control be established, before the advance of armies, to say nothing

of nuclear escalation, has entirely transformed the international situation? A whole chain of rather improbable assumptions is required to support the proposition that sea control, in the sense this has always been understood, could be both feasible and, in the likely time-scale of general war, relevant.

The ideal of sea control is not dead and still has its Western devotees, but the rational arguments are against it. Even for the world's strongest navy – just – the command of the sea is a dubious objective. For lesser navies it is fantasy alone and improbable even in combination. No strategy has yet been advanced, let alone agreed, which offers the NATO navies – the only naval alliance that adds anything of importance to the strength of its principal member – the assurance of virtual control, whether generally or in a defined sea area, in time to determine every course of events. The feasibility and the value of sea control depend, as at this stage of the twentieth century they must, on the nature of the conflict and on the significance of the particular uses of the sea which it is desired either to control or to deny.

This is not an entirely new situation. In the past many navies have accepted that command of the sea, individually or in foreseeable combination, was not a feasible objective. They adopted alternative strategies: the war on trade or coastal defence or the over-sophisticated, as it ultimately turned out, risk-policy of Tirpitz. The new factor today is that command of the sea is no longer the automatic and attainable solution to anyone's problems.

Nor has any alternative principle emerged to offer a simple and obvious answer to the question: what are navies for? Gorshkov, admittedly, has certain suggestions to offer:

At present, a fleet with its strikes from the sea is capable of changing the course and outcome of an armed struggle even in continental theatres of military operations.

Today, a fleet operating against the shore is able not only to solve the tasks connected with territorial changes but to directly influence the course and even outcome of a war.

The chief goal of a fleet is becoming . . . action against enemy ground objectives and the protection of one's territory from the strikes of his fleet.¹⁵

These are not isolated opinions. The projection of power ashore has already been noted as a major task for the United States Navy. NATO

hope to have a Strike Fleet in the Atlantic. Gorshkov's propositions can nevertheless not even be debated without specifying the fleet in question, the identity of the adversary, the nature of the conflict and the theatre of operations. In some circumstances Gorshkov might be proved correct, but his assertions cannot be regarded as a basis for the kind of general rule which Mahan, Corbett and Roskill thought they had found in the concept of command of the sea. Executing or preventing strikes from the sea against the land, amphibious operations, controlling or denying a particular area of the sea, convoy and escort, blockade, the political application of limited naval force: these and others are types of naval operation which may or may not prove both feasible and useful. None of them is the sure, sovereign and universally applicable remedy that command of the sea was once claimed to be for the superior fleet. The relevance of sea-power and the answer to Rosinski's question at the start of this chapter depend on the nature of the conflict.

If, therefore, the simple clarity of Roskill's classical formulation is to be adapted to modern conditions, there are two courses. One is to relapse into a prudent vagueness:

The function of maritime power is to secure for oneself, and to deny to the adversary, those uses of the sea which are important to the outcome of the conflict.

The other, which will be attempted in the rest of the book, is to abandon the search for general principles in favour of a more detailed examination of the different types of conflict in which Britain might be involved, of the importance which various uses of the sea might assume in each case and of the possible approaches to securing or denying them. If any view emerges of the function, in the last decades of the twentieth century, of maritime power, it will be one specifically geared to British requirements and British resources. As such, it will have to take account of many factors besides those listed by Mahan among the elements of sea-power. To the geographical position and configuration of the British Isles, for instance, must be added the extent to which these have been or may be exploited, not only by the British, for more than naval purposes. The national institutions are more variously influential than those known to Mahan. The character of the people is more complex and less easily defined. The character of the government fluctuates considerably and is more susceptible to outside influence than for centuries past. What constitutes sea-power is a question quite as difficult, and even more wide-ranging than what can sea-power do?

For the moment two assertions will suffice. The function of sea-power is to influence conflict concerning the use of the sea. Its existence depends on a national judgment that the influence is important and a national will to create the resources for its exercise. Neither condition is self-evident.

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1 THE FUNCTIONS OF NAVIES

'Why do we need a navy?' is a recurring question. By indicating the ends for which navies have been and can be used, this chapter provides the beginning of an answer. It can only be a beginning because a full answer will depend upon the national interests and circumstances of whoever asks the question. As he looks at the shop-window of foreign policy instruments, the decision-maker must pay his money (or rather his country's money) and take his pick in the light of policy priorities, national capabilities for action, and beliefs about the utility of different instruments. This chapter is restricted to spot-lighting only the naval corner of that window.

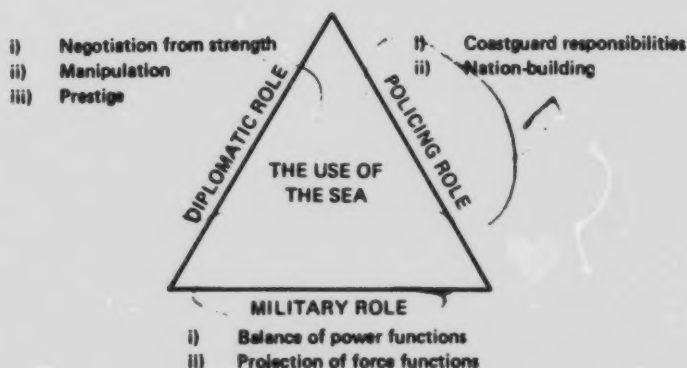
The use of the sea

The functions of navies can be conceived as a trinity, the idea of three-in-one. The unity (the *one-ness*) of the trinity is provided by the idea of *the use of the sea*: this is the underlying consideration in the whole business of navies and foreign policy. The character of the trinity is then defined by the three characteristic modes of action by which navies carry out their purposes: namely the military, the diplomatic, and the policing functions. Within each of these roles navies can serve a large variety of subordinate functions. The trinity can be expressed diagrammatically as shown in Figure 1.

In order to carry out these functions, naval planners have to translate policy objectives into forces of a particular size and composition; they have to decide upon the character and timing of deployment and employment; they have to choose appropriate tactics and so on. The range of operational tasks by which foreign policy objectives are translated into naval happenings is extremely wide.

The theme of navies and foreign policy is *the use of the sea*. Broadly, states are interested in the use of the sea for three purposes: (1) for the passage of goods and people; (2) for the passage of military force for diplomatic purposes, or for use against targets on land or at sea; and (3) for the exploitation of resources in or under the sea. Navies exist as a *means* to further such ends. As it has been understood from earliest times, they exist as part of a state's general maritime policy, whose objective is to attempt to use the sea for one's own purposes, while being in a position to attempt to prevent others from using it in ways

Fig. 1: The functions of navies



which are to one's disadvantage.

It is appropriate that the *military role* forms the base of the trinity, for the essence of navies is their military character. Actual or latent violence is their currency. It is a navy's ability to threaten and use force which gives meaning to its other modes of action. It derives its diplomatic impact from perceptions of its military character. Obviously it derives its utility in conflicts from its ability to exert brute force successfully. The *diplomatic role* of navies is concerned with the management of foreign policy short of the actual employment of force. Diplomatic applications support state policy in particular bargaining situations or in general international intercourse. The *policing role* is internally as much as externally oriented. These functions are rarely concerned with the armed forces of other states: they are mainly concerned with extending sovereignty over the state's own maritime frontiers.

In considering this trinity several points should be kept in mind.

- (1) A clear picture of warship functions should afford a basis for

comparing and contrasting the naval efforts of different countries, and structure any discussion of the utility of navies. (2) Some of the terms of analysis have various nuances, but for the moment it is well to avoid confusion by semantic exegesis. (3) Like all classifications, a degree of artificiality is unavoidable. This is chronically so in the case of naval operations in peacetime, for the same operation can serve one or more objectives: this mixture of objectives can be separated for analytical purposes, but in practice, in a policy-maker's head, they will probably be present in various degrees of jumble. (4) This presentation of naval functions as a trinity should not be taken to mean that each part is of equal importance. Different states will weigh the importance of each function in the light of their individual maritime problems and interests. (5) The classification is not based upon abstract ideas, but in all cases (except nuclear war) it is based upon an array of empirical evidence.¹

Policing role

The main aims and subsidiary policy of objectives of this role are as follows:

- (1) *Coastguard responsibilities*
 - (i) Sovereignty
 - (ii) Resource enjoyment
 - (iii) Maintenance of good order
- (2) *Nation-building*
 - (i) Contribute to internal stability
 - (ii) Contribute to internal development

Policing takes place mainly in territorial waters, and is concerned with the maintenance of public order in a broad sense. It is a maritime version of the work of the police, border guards, and the idea of 'military aid to the civil authority'. While this role is rarely seen as a part of foreign policy as such, the character and effectiveness with which it is carried out (or not) may have external implications.

Coastguard responsibilities. These tasks are by far the most important within the policing role. They are responsibilities familiar to all coastal states, and may be performed by a separately organised maritime service, a navy, or jointly. These forces attempt to further the basic interests of all coastal states, namely the extension of sovereignty, resource enjoyment in contiguous areas, and the maintenance of good order.²

Nation-building. This role involves contributing to internal stability, especially during natural or political turmoil, and contributing to internal development in more settled times. These limited functions are a naval equivalent of the role performed by many armies, going under such names as PUMF (Peaceful Uses of Military Forces) and MACC (Military Assistance to the Civil Community). For obvious geographical reasons, these functions cannot be performed on an extensive scale by navies; however, they can sometimes make a worthwhile contribution, after natural disasters or civil commotions, or in playing a limited modernisation role in some Third World countries.

The coastal policing role is not likely to appeal as an important *mission* to those navies which the jargon describes as 'blue-water'. However, for over one-third of the world's navies, coastguard and nation-building responsibilities represent the extent of their functions (and ambitions). The governments of countries where this is so either do not perceive an external naval threat, or they have no capability to match one. The defence of their maritime frontiers is therefore largely dependent on general international stability. However, even the smallest warships can have external effects which are disproportionate to their military punch. This is particularly the case in the deterrence of small-scale maritime intrusion (especially of the economically motivated type). The willingness to resist can sometimes have political effects bearing no relation to the intrinsic military effort. Iceland's gunboats, one of the most miniscule of forces, have given evidence of this. At the other end of the spectrum of coastguard forces is the US Coast Guard (USCG); this is bigger than the navies of most countries with its destroyer-size 'cutters' and hundreds of aircraft.³ Essentially the USCG is a para-naval organisation and has been used as such.

Diplomatic role

The main aims and subsidiary policy objectives of this role are as follows:

- (1) *Negotiation from strength*
 - (i) Reassure and strengthen allies and associates.
 - (ii) Reassure and strengthen friendly governments threatened by serious internal challenge.
 - (iii) Reassure and strengthen friendly governments fearing external attack.
 - (iv) Change the behaviour of friendly governments when the

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latter are facing the threat of external attack.

- (v) Signal 'business as usual' during a crisis.
 - (vi) Support or threaten force from the sea to support friendly governments contemplating acquisitive military action.
 - (vii) Improve bargaining strength.
 - (viii) Threaten force from the sea to support policy.
 - (ix) Improve one's ability to affect the course of specific diplomatic negotiations.
- (2) *Manipulation*
- (i) Manipulate bargaining positions within an alliance.
 - (ii) Demonstrate support to different countries.
 - (iii) Gain or increase access to new countries.
 - (iv) Build up foreign navies and create proxy threats.
 - (v) Create a degree of naval dependency.
 - (vi) Provide standing demonstrations of naval power in distant waters to establish the right to be interested.
- (3) *Prestige*
- (i) Provide psychological reassurances for the home country.
 - (ii) Project a favourable general image of one's country.
 - (iii) Project an image of impressive naval force.

The diplomatic role has always been an important one for major navies, and has involved a wide variety of operational tasks. Diplomatic effects are induced by both latent and active means, as will be discussed in the following chapter. The range of functions within this role encompasses actions with a degree of implicit or explicit coercion (negotiation from strength) to actions promising reward (naval aid) to actions seeking to oil the wheels of relationships by improving an image (influence and prestige).

Negotiating from strength. So-called 'political demonstrations of naval force' are a traditional function of navies. It is one which has again risen to prominence because of recent manoeuvrings by super-power warships in different parts of the world. By such actions the superpowers have sought to persuade target states to behave in a favourable manner without the need to use force. In the diplomatic use of warships, the intention is invariably to avoid violence, but this possibility will nevertheless be present in such tasks as assisting associates when they are involved in a conflict. Where there is a possibility of violence, a prudent naval presence must include an ability to be able to fight for control of the air, as well as the sea, and possibly also the ability to project military forces ashore.

Manipulation. The influence tactics of naval diplomacy are designed to have their effects by changing (however incrementally) the political calculations of the relevant observers. Because of this, much thinking has to go into the size, shape and tactics of the force involved if the desired messages are to be effectively communicated. Effects may be induced by negative as well as positive actions. Although the range of influence-building tactics is wide, because their effectiveness depends upon the perceptions of others, this is a rather unpredictable activity.

Prestige. The promotion of a country's prestige and influence is not an operational naval *mission* in the usual meaning of the term. It is a function of considerable importance nevertheless, and is recognised as such by major navies. This role has relatively few specific operational tasks. With the exception of naval aid, port visits and ceremonial activities, the success of this role is invariably the by-product of overall naval behaviour. Encouraging others to think in desired ways and to listen to one's case with sympathy requires diplomatic as well as naval subtlety.

Military role

The main aims and subsidiary policy objectives within this category can be divided between those pertaining to what we understand as peace, and those pertaining to what we understand as war. The peacetime or *balance of power* functions are as follows:

- (1) *Strategic nuclear deterrence*
 - (i) Deter attack on the homeland, and the homelands of the allies.
 - (ii) Provide secure situation in which to promote foreign policy interests.
 - (iii) Contribute to the nation's ability to negotiate from a position of recognised strength.
 - (iv) Counter the deterrent forces of adversaries.
- (2) *Conventional deterrence and defence*
 - (i) Prepare for wartime tasks.
 - (ii) Deter hostile intrusion into maritime frontiers.
 - (iii) Contribute to local maritime stability.
 - (iv) Protect national claims in contiguous seas.
 - (v) Extend national claims in contiguous seas.
- (3) *Extended deterrence and defence*
 - (i) Protect state activities on the high seas.
 - (ii) Protect the lives, interests and property of nationals (and

others) operating in distant waters.

- (iii) Protect the lives, interests and property of nationals (and others) threatened by local disturbance or natural disaster.
- (iv) Provide the local maritime defence of distant national territories.
- (v) Develop operating techniques for the essential wartime tasks in distant waters.
- (vi) Build up an infrastructure (including bases and other shore facilities) for the performance of wartime missions.
- (vii) Demonstrate commitment to allies.

(4) *International order*

- (i) Support an internationally recognised law of the sea.
- (ii) Do not support an internationally recognised law of the sea: support and extend national claims.

Strategic deterrence. Four navies presently have the capability of projecting nuclear weapons against their enemies from the sea, and so also of withholding them to affect post-exchange bargaining. China may have such a capability in the near future. A sea-based deterrent force is a very particular and very specialised branch of a navy. The maintenance of 'invulnerability' is a major feature of the operations of a missile-firing submarine (SSBN). Consequently, when they slip under the water and 'get lost' their activities are removed from the daily round of surface and other submarine forces. Nuclear strike-carriers, on the other hand, have always had a more integrated role in naval deployment and planning. Because of improvements in anti-submarine warfare (ASW) techniques, there has been some talk about the problems of protecting seaborne retaliatory forces. If SSBNs become vulnerable to any marked extent, they will require some form of defensive screening (and thus integration with other fleet activities) or further geographical invulnerability.

The sea is used to deploy counters for deterrent forces. This involves the tracking and marking of seaborne nuclear delivery vehicles. In the case of strike-carriers this is a relatively easy task, but this is not so with SSBNs, whose capabilities have continually outrun their challengers'. The counter-deterrent task is now generally agreed to have been the one responsible for the steady geographical expansion of Soviet naval units through the 1960s. Their pattern of forward deployment was basically fixed by the need to try to track and mark US SSBNs and strike-carriers. If war were to break out it would be the Soviet objective to sink as many of these units as possible and so limit the damage inflicted on

the Soviet Union.

Conventional deterrence and defence. Most navies do not have a nuclear weapons capability; their contribution to deterring their country's enemies is limited to more conventional approaches. To the traditional so-called 'blue water' navies (the Royal Navy and the US Navy in particular) there has been a tendency to assume that their role in peace and war is something which happens *over there*, in distant waters. For most navies that is not the case: for most of them strategy begins and ends in the contiguous seas.

Basic maritime defence in the contiguous seas is the mission of just under two-thirds of the world's navies. Their objective is to extend metropolitan defence (and possibly offensive potentialities) into adjoining sea areas, thereby raising the cost of any unwelcome maritime intrusion or interference. 'Contiguous seas' is a more appropriate phrase than 'coastal defence'. Area defence zones have become so extended with the growing range of naval weapons that the word 'coastal' now gives a false impression of the potential scope of the weaponry of the warships of even quite small navies.

Extended deterrence and defence. The sea is also used for extending deterrence and defence for the protection of one's own nationals and state activities in distant areas, and for protective responsibilities for allies and associates. The protection of national assets and state activities (such as weapons testing) may be carried out in distant regions by navies which do not regard themselves as oceanic in a fighting sense. The Dutch Navy has contributed to the maritime defence of its remaining distant territories. During the process of colonial withdrawal, the protection of nationals in distant lands was a regular operational activity, especially for the Royal Navy, and involved its warships in a variety of limited actions. In previous centuries, when pirates were very much in evidence, the protection of nationals on the high seas was a function of primary importance for all naval powers. Pirates are no longer a large problem (though they still exist). Harassment by foreign powers is a bigger threat, and naval building has often been justified by the need to protect a far-flung national merchant marine. In practice, however, the ratio of naval units to merchant ships has never been sufficient to defend them in detail against conceivable threats.

In order to improve their deterrent and defence postures, and to support policy short of force, fleets and squadrons of the major naval powers have operated permanently or semi-permanently in distant waters. Whatever the detailed objectives of such deployments, the

associated requirements are always likely to be exhaustive. Exercises, efforts to improve techniques, readiness and the surveillance of potential enemies involve a great deal of effort. The discharging of tasks relating to major war functions also requires the building up of the necessary infrastructure; this will probably include the acquisition of bases or other facilities in strategically located areas. Forward deployment therefore involves important political implications as well as taxing naval activity.

International order. Underlying the peacetime (balance of power) functions of navies is the objective of international order in general and at sea in particular. The phrase '*maintaining* international order' has been deliberately avoided. Invariably the objective has been to maintain order, but for some naval forces it may be to change the *status quo* by extending national claims, or challenging a naval monopoly. Given the traditional interest of the predominant naval powers (the producers of security at sea) in the freedom of naval movement, and the general interest of states engaged in international trade in safe and dependable transportation, in practice the maintenance of maritime stability has been the norm.

Projection of force functions. If a state is no longer able to secure its objectives by military power, it may feel compelled to resort to military force. It should go without saying that the concept of war is much more confused than in former times, when it had some legal as well as operational discreteness. Wars were declared in former times: now they just happen.

The use of force at sea can be simply divided into four types of war: (1) *general war*, (2) *conventional war*, (3) *limited wars and interventions*, and (4) *guerrilla wars*. There is some artificiality in this distinction, but it has a common-sense relevance. Within each category the spectrum of possible violence is wide. The idea of intervention includes everything from the seizure of a town as a hostage, to the support of an international peace-keeping operation, to a large-scale intervention. Limited naval confrontations include everything from harassment to a 'total wet war'.⁴

The operational tasks which navies perform within each type of war will vary enormously in geographical scope and in intensity of violence. However, the objectives are similar, and may be conceived as follows:

Projection of force functions

- (i) To meet the level of challenge of whatever level is considered militarily and politically desirable.

- (ii) To challenge and prevent the enemy from using the sea for his own purposes.
- (iii) To command the areas of sea required for allied or national use.
- (iv) To use the seas for the transportation of men and supplies.
- (v) To use the sea for the projection of force against targets on land.
- (vi) To support international peace-keeping operations.

As the intensity and character of a conflict changes, additional tasks may be imposed on the base of each country's minimum defence requirements. Interests and capabilities will be the main determinants. Some countries will be more than satisfied to oppose the enemy's use of the sea: others will wish to use the sea more positively for their own purposes. Different strategies evolve from this dichotomy. A crude but serviceable distinction is usually made between 'sea denial' strategies for those with limited interest and 'command of the sea' (or now more commonly 'sea control') strategies for those with the more positive interests.

However remote war might sometimes seem, it is from their fighting ability that warships have their ultimate significance. By their latent potentiality in peace they can affect the management of politics amongst nations, and by their success or otherwise in discharging their missions in war they can help determine whether their country directs the course of war, or suffers it.

Ends and means

There are several reasons why it is valuable to concentrate on a functional approach.⁵ (1) Concentration on policy objectives should encourage the rational selection of the resources to be allocated to naval forces. (2) A mission approach should help the problem of establishing tactical and financial priorities. (3) It should assist the optimum selection of weapons systems. (4) It should ensure that the members of a navy focus on the whole rather than upon one of its parts. (5) Finally, by clarifying why navies might exist for any particular country, one can discuss more sensibly the array of strategies and tactics which they adopt. Before asking 'what is their naval strategy?' one should ask, 'what is their interest in the use of the sea?'

Two warnings are necessary about the functions of navies as presented in this chapter. (1) The list clearly illustrates the comprehensive instrumentality of warships. However, it does not suggest their

utility in any particular role in modern conditions. This difficult problem is reserved for a later chapter. (2) The trinity should not be taken as a model in any practical sense. The whole range of functions, objectives and tasks will not be within the capabilities of the overwhelming majority of countries. Because of volitional or resource constraints, the majority of navies will be confined to a few of the functions listed, though these may change with the ebb and flow of national development, world events and so on. The varying interests of different countries in using the sea for national purposes will be one of the themes of this book: from these different interests come different priorities, levels of capability, strategies and so on.

Having established a preliminary framework for looking at the functions of navies, the following chapters examine some of the characteristics of the interrelationships between navies and foreign policy. In looking at navies as instruments, the emphasis will be upon the naval support of diplomacy and upon what have been described as the 'balance of power' functions. From the perspective of the mid-1970s, these are where the most interesting and important questions lie.

Notes

1. In drawing up this classification the following sources have been most useful: James Cable, *Gunboat Diplomacy. Political Applications of Limited Naval Force* (London: Chatto and Windus for the ISS, 1971); Vice-Admiral Sir Peter Gretton, *Maritime Strategy: a Study of British Defence Problems* (London: Cassell, 1965); L. W. Martin, *The Sea in Modern Strategy* (London: Chatto and Windus for the ISS, 1967); Michael McGwire, *Soviet Naval Developments. Capability and Context* (New York: Praeger, 1973). Unless stated otherwise, references to McGwire are to this volume; Michael McGwire, Ken Booth and John McDonnell, *Soviet Naval Policy. Objectives and Constraints* (New York: Praeger 1975); Vice-Admiral Stansfield Turner USN, 'Missions of the U.S. Navy', *Naval War College Review* (hereafter *NWCR*) March-April 1974, pp. 2-17.
2. See Captain J. R. Hill, 'The Rule of Law at Sea. The Capacity and Suitability of Maritime Forces for the Enforcement of International Law at Sea' (unpublished thesis, Department of Laws, University of London, King's College, 1972), pp. 172-3.
3. J. R. Hill, 'The United States Coast Guard', *World Survey*, No. 47, November 1972.
4. Martin, *op. cit.*, p. 44. Title of speech by Admiral John S. McCain USN, May 1966.
5. These comments are based upon Turner, *op. cit.*, pp. 2-3.

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CHAPTER I

Sea Power in Modern War

WHEN Japan struck at the American battle fleet at Pearl Harbor on the morning of December 7, 1941, the immediate thought of the average American was that the Japanese had run completely amuck. The word "hara-kiri" was much in the air. How could it be other than suicidal for this oriental nation of limited resources to challenge to mortal conflict the greatest industrial power in the world, and by that challenge to give unity and resolution to its previously vacillating people? How could a political event so portentous for Japan possibly be offset by the disabling of a few battleships thousands of miles away from Japanese territories? Would the Japanese not have been shrewder to have ignored our fleet and by-passed our possessions in their pursuit of conquest?

We know that the Japanese miscalculated, but we know also that they were goaded to their fateful act not by desperation but by faith in victory. They knew that regardless of the ultimate magnitude of our strength we could not bring it to bear in the western Pacific save through the instrumentality of sea power. They knew that regardless of their own strength in infantry and mechanized divisions, in bombing and torpedo planes, they could not seize the advanced bases they needed for the operation of these planes and armies, they could not move their divisions across the water to new fields of conquest and keep them supplied with ammunition and fuel, if they were opposed by a superior sea power. Our battle fleet was the most concentrated, the most potent, and the most readily available force which could oppose their purposes, and it was our battle fleet at which they struck first.

Never before had the world seen such a gigantic demonstration of sea-borne invasion as the Japanese forces presented in the months following the Pearl Harbor attack. Never before had the offensive potentialities of command of the sea been so forcefully

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demonstrated. Yet curiously, at that particular moment it became most fashionable to decry that apostle of modern sea power, Admiral Mahan, as a false prophet, to assert that he belonged among the scholastics of the Middle Ages. The general conviction was that while sea power in the past had been invariably decisive in war and had determined the course of history (which was never claimed for it), it was now a clearly obsolescent factor. The new air arm had displaced it from its proud preeminence.

Unfortunately for Mahan's memory, he is much more often criticized than read. For in the first chapter of his most famous work he pointed out that "the unrelenting progress of mankind causes continual change in the weapons; and with that must come a continual change in the manner of fighting." He would have been the first to welcome the modern airplane to the arsenal of naval weapons; and he would have been the first to reject doctrines which confuse the aims of military power with the tools for carrying them out.

Sea power has never meant merely warships. It has always meant the sum total of those weapons, installations, and geographical circumstances which enable a nation to *control transportation over the seas during wartime*. If the airplane plays an important part in such control, which it obviously does, it is functioning as an instrument of sea power. All naval enterprise—with the exception of bombardments of land objectives from the sea, which is only an incidental use of sea power—is directed toward the single aim of affecting the movements of the lowly freighter or transport (and landing craft) in which is carried nearly all the commodities and the men that move across the sea. If in the future the greater part of ocean transport is carried in aircraft rather than in ships, or if the transfer of men and commodities across the seas becomes unimportant, sea power as such will cease to have meaning. At the present time, however, because of the most telling economic and engineering considerations, neither of these contingencies seems near at hand; at any rate, they have no bearing on present circumstances.

Even if one insists on regarding as a separate branch of military

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power the forces which move through the air rather than upon land or water, it is a rather limited outlook which concentrates upon the spectacle of the airplane over its target to the exclusion of the long chain of circumstances which are responsible for putting it there. The air forces which so vitally aided the Japanese armies in their quick conquests of Malaya, the East Indies, and Burma operated from airdromes which in almost every instance had been seized by Japanese armies landed from ships. Many of the aircraft involved, especially the fighter planes, and all their fuel, cargoes, and maintenance crews and supplies were brought to the scene of operations in ships. Their local air superiorities, in other words, were derived from sea power. Most of the materials that went into the construction of the British aircraft which hurled back the Luftwaffe in the Battle of Britain of 1940 and which took the offensive in 1942 were brought to the British Isles in ships. So, too, was all the fuel which those aircraft used, as well as most of the food which fed the men and women who made the planes and the crews that flew them. The island base from which these aircraft operated would have been untenable without British command of the sea approaches from the west.

It does not therefore detract in the least from the marvelous power of air forces to say that command of the sea is still as likely as formerly to be decisive in great wars, and that in fact the greatly increased quantity and complexity of the equipment used in modern war has made control of the sea lanes more important than ever before. The question of whether the airplane or the warship is the best means of exercising maritime control is of course another matter, and one which will be examined at some length in subsequent chapters. For the moment it is enough to bear in mind the distinction between issues which are too generally confused. In scoffing at navies the extreme air enthusiasts are prone to forget the purpose for which navies exist. If they could avoid that error, questions such as whether additional airplanes are more necessary at the moment than additional warships or whether aircraft have made battleships obsolete could be threshed out somewhat more dispassionately and fruitfully.

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The ability of the United States to wage war abroad rather than at home, to win a war rather than merely to avoid being conquered, and to win it at a minimum of cost in blood and treasure, depends on our ability to aid our allies first to sustain themselves and second to carry the fight to the enemy. Except for large bombers—minus their ground crews and supplies—that aid can go to them only by sea. It is an old axiom among the armed forces of America that the Navy is "our first line of defense," but it is just as true and somewhat more meaningful to say that the Navy is our first line of offense. No war can be won simply by standing interminably on the defensive, unless the word "victory" be given a hollow content indeed. Regardless of how impregnable our defenses are, and they can never be perfectly so, our security in the world is jeopardized if we cannot inflict vital injury on any nation which menaces us or our legitimate interests. And for this our Navy is indispensable.

In the two great wars which we have had to fight during a single generation, the fact that we have had strong allies who were contiguous with our enemies has been an incalculable benefit to us. It has enabled us to hit our enemies hard, and to do so on their own thresholds rather than on ours. In the Pacific we lost through early weakness our original great advantages in position, and we have had to redeem those losses through a slow and costly process of wresting bases back from the Japanese. But it is folly to talk, as some do, about winning the war from our own shores, whether by air power or other means, when we have or can gain positions which make it possible for us to deliver our blows to the enemy far more generously than would otherwise be the case.

For no development thus far in aircraft or other weapons of war has nullified the tremendous bearing upon strategy of the factor of distance. Aerial bombardment can be carried on much more effectively at 300 miles than at 600, and immeasurably more effectively at 600 than at 1,200, even though the operating ranges of available aircraft may exceed the latter figure. We know also that our ability to defeat the enemy will ultimately depend upon

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armies as well as air forces, and these can be brought against him in large numbers only by sea.

A navy thus has defensive and offensive uses, which are sometimes indistinguishable and always mutually supporting. By denying the seas to the enemy while assuring the overseas transfer of one's own men and munitions, a navy may be defending one's own territories from invasion at the same time that it is carrying through an offensive. And the fact that it is defending one's territories means that a much greater quantity of men and materials of war can be dispatched abroad for offensive uses than would otherwise be the case. Even when England was alone and desperately in peril, Churchill's faith in the Royal Navy was such that he sent to Egypt men, planes, tanks, and munitions which except for the protection of that Navy would have been needed at home. For the first year that Russia was in the war, England was sending abroad five planes and fifteen tanks for every one she received from America. England has always resorted to such strategy in war, and it explains why she has always accomplished so much with small armies.

If the chief purpose of a navy is control of sea-borne transportation, the vehicles of such transportation must be considered not as incidental to sea power but as an essential part of it. It would be as unreasoning to consider sea power in terms of warships alone as it would be to consider railroad trains in terms solely of locomotives. A locomotive without cars attached represents power well enough, but power without functional meaning. Since the warship has meaning chiefly as it affects the movements of cargo carriers, lack of such carriers makes the sea as much a barrier as does a superior hostile fleet—more so, perhaps, for a hostile fleet may frequently be evaded, but the consequences of a shortage of shipping cannot be evaded. Without sufficient shipping, naval efforts can be only negative; one can keep the enemy from using the sea but cannot use it for oneself.

During most of 1942-1943, the limiting factor in the efforts of the United Nations was not so much men and weapons as the shipping to carry them. The German U-boat campaign had taken

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an immense toll of our shipping, which reached its lowest ebb in the autumn of 1942. The European theater with its extended periphery demanded the passage of convoys not only to Great Britain, where our major strength was being built up, but also to ports in the Arctic and the distant Persian Gulf. The active fronts in the Mediterranean had for many months to be approached mainly by a voyage round the Cape of Good Hope, a voyage which the average freighter could make only thrice in one year. The Pacific theater, on the other hand, encompassed battlefronts which were six to eight thousand miles from our shores. To give either of these theaters, half way round the world from each other, the full attention it deserved would make enormous demands on our shipping. And to give such attention to both of them simultaneously was out of the question. Concentration of offensive effort regionally was less a matter of principle judiciously chosen than of stark necessity in the face of a shortage of bottoms.

The event which suddenly immersed us in total war in the Pacific brought us also into the European war, but for a while it was difficult for Americans to think of anything but the necessity of dealing a crushing blow to the Japanese. The manner in which war came to us, the galling defeats suffered at the hands of a power obviously inferior in total strength, the undeniable strategic importance of the campaigns in the Pacific and Indian oceans, and the knowledge of the terrible costs that would be required to retrieve what was being lost there made it easy to forget that the most decisive theater in this all-encompassing war was Europe and the sea lanes leading to it.

Of the three great powers in the Axis camp, Germany was unquestionably the most formidable and in the long run the most dangerous to the security and well-being of the United States. The Atlantic is after all much narrower than the Pacific, and American cultural and economic affinity with Europe has always been incomparably greater than any attachments to Asia. And quite apart from ultimate goals, it was clear from the beginning that victory over Japan would be an empty victory indeed if it were coupled with a United Nations defeat in Europe at the hands of

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Germany, whereas the defeat of Japan might reasonably be regarded as inevitable—though by no means automatic—once Nazi power was liquidated.

The question of whether it was best to attack the stronger or the weaker enemy first could be dismissed as entirely academic so far as concerned United Nations strategy. Russia and Great Britain, the two most powerful of our allies, were already engaged to the hilt in Europe, with the enemy at their very throats. It was impossible to mark time in Europe in order to concentrate an overwhelming offensive strength against Japan. It was entirely logical, on the other hand, to pursue a defensive strategy in the Pacific and to gather all available strength for a knock-out blow against Germany. The ideal of concentrating the maximum of power against each of the main enemies in turn could be realized far more fully by taking Germany first. It was important to assist the long-suffering Chinese in the defense of their land and to deprive the Japanese at the earliest possible date of the initiative in the Pacific war, but that still did not mean the same thing as an all-out offensive against Japan. To be sure, the groundwork for the defeat of Japan had to be laid by what were essentially naval operations, which could be pushed forward concurrently with large-scale operations in Europe and the Atlantic. But ultimately large armies would have to be transported across the Pacific, and these would require great fleets of merchant vessels both to move and supply them. Neither the armies nor the transport and cargo vessels would be available in quantity sufficient for a final decision until the defeat of Germany was either consummated or well on its way to conclusion.

The first problem facing the United States, therefore, was to sustain Russia and Britain until all-out offensives could be launched against Germany. In this scheme of strategy Britain occupied what was essentially the key position. Her geographical position combined with her naval strength made it possible for the United Nations to control shipping lanes across the Atlantic, which the United States and Russia together could not do without her aid. That same geographical position made Britain the logical

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base for the gigantic sum of Anglo-American offensive strength that was gradually built up. So long as a large Russian Army remained in action on the eastern front, the chances for dealing a death blow against Germany from the west were certain to increase, and the heart of German power was much closer to Britain than to Russia. The great Russian offensives of 1943-1944 and the tremendous invasion force which finally leapt from the British Isles to German-held Europe in June 1944 were the final fruition of victory on the seas. Admiral Sir Bertram Ramsay was speaking not of a single day's work but of a campaign which stretched over five bitter years when he said on the evening of June 6: "We have enabled General Montgomery to fight a land battle."

The Battle of the Atlantic, which opened on the first day of the war, was thus the key naval campaign of the whole war. Its outcome could be determined not by the result of a decisive engagement but by a score on a tally sheet—of ships lost against ships built, of ships lost against enemy U-boats sunk. By the middle of 1943 the total score of German successes was all too impressive. And when those successes are considered in the light of the facts that Britain and her Allies had entered the war weaker in shipping than they had been in the First World War and that the lines of communications to the active fronts were much longer, the compelling reasons for the fantastically large 1942-1944 shipbuilding program which the United States had set for herself are apparent.

For the enemy there were stringencies no less acute. It is curious that upon the entrance of Japan and the United States into the war, the daily press, while full of comparisons of the naval strength of the two new belligerents, entirely neglected the equally important item of shipping tonnage. Yet Japan was carrying on campaigns over a great maritime area with a shipping which on December 1, 1941, totaled less than 6,000,000 gross tons. With such limited resources in completed ships, and with a steel shipbuilding capacity less than one-twentieth that of the United States, Japanese shipping losses during the first two years of the Pacific war were of vital strategic import. When offset by captures and new con-

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struction (the latter pushed to the uttermost with clumsy and inefficient wooden vessels), her losses in merchant tonnage entailed a net reduction of at least one-third. From this one may deduce that by the spring of 1944 Japan had lost, mainly to American submarines, a number of cargo vessels, transports, and especially tankers amounting to approximately half her original shipping fund.

Her conquest of Malaya and the East Indies brought within Japan's dominion some of the richest areas in the world, especially in oil and rubber production; but they did not enhance her ship-building capacity, and her more extended lines only made her transport problem more difficult. Supplies of oil at home, despite supplementary synthetic production, were desperately short; civilian consumption of any kind of fuel was severely restricted, and that of rubber was practically nil. The sunken ships were thus a mockery to the wealth of the Indies, which Japan could exploit only in small part and her European Axis partner not at all. Meanwhile the armies she had so recklessly ferried to distant islands were perishing for want of food and ammunition.

To the European Axis, sea-borne communications were of lesser significance, but only because the great prize—access to the open sea and to the commodities that lay beyond—had been denied them at the outset by the strength of the British Navy. Even after the belligerency or open hostility of the United States and other American republics supplemented the naval blockade with denial at the source, the grain and meat of the Argentine remained available to whomever could come and get it, which Germany and her satellites could not. More impressive still was the well-nigh complete separation between the European Axis powers and their oriental partner, which contrasted strongly with the continuing movement of ships between the three greatest of the United Nations.

Yet within the maritime areas left to the European Axis, their shipping was important. Germany needed shipping in the Baltic and the North Sea for her campaign against Russia and for communications with Scandinavia. She used it also for coastwise

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traffic between Germany, the Low Countries, and France. And while Italy had remained an ally and an active front had existed across the Mediterranean, shipping had been an indispensable means both of Italian coastwise transportation and of military communications with the Axis armies in North Africa. But the proportion of losses suffered by the Axis powers relative to their total fund of shipping was extremely severe, sufficiently so to cause Mr. Churchill on one occasion to remark that "the destruction of enemy tonnage is proceeding at a most rapid and satisfactory rate."

The ugly little tramp steamer thus occupies an important quarter of the shield of naval power. It is less splendid but no less vital than the great battleship. But both are ships, and to all the embattled nations in the Second World War there was nothing quite so valuable as a ship.

It is one thing to have the implements of sea power and quite another to use them wisely to achieve the purpose for which they are provided. This general handling of the tools of war to realize their purpose is what is known as "strategy." The term is often confused with "tactics," which refers to the localized business of fighting. Admiral Mahan proposed a simple criterion to distinguish the two concepts—the fact of contact. Where the adversaries are in contact we have tactics, but strategy transcends contact to include the whole conduct of a war. Ideally, all tactical problems should be handled in a manner to further the strategic end. Thus, strategic considerations may demand on the one hand that a warship avoid an engagement with a force to which it is not especially inferior (as for example when it is on a commerce-raiding or reconnaissance mission), or on the other hand that it attack and fight to the bitter end even when hopelessly outclassed.

There are certain basic ideas about fighting a war which have such general validity and importance as to be known as "principles" of strategy. But there is nothing especially esoteric about these basic principles. They have been garnered by intelligent reading of military history. The general treatise on naval strategy

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happens to be a very recent invention, and the great admirals of the past attained their stature without benefit of catechisms. They thought their problems through on the basis of common sense and experience and arrived at wise decisions.

However, common sense is not an abundant commodity, and the practice of thinking problems through is exceedingly rare, especially among persons whose conclusions are untrammelled by responsibility. The layman unacquainted with the prevailing ideas of strategy will, when confronted with a strategic problem, frequently venture unwise proposals. Yet intelligence and an inclination to think are indispensable even when one is conversant with the principles—among professionals as well as laymen. Adherence to one principle frequently demands violation of another, and there is no principle but admits of exceptions. Wars cannot be fought according to books of rules. The admiral or general who adheres inflexibly to any set of preconceived commandments is hardly likely to be a victor against a resourceful opponent.

As a matter of fact, it is easier to speak of principles of strategy than to catalog them. The outstanding treatises of the last hundred years on the strategy of war show a remarkable diversity respecting the ideas which are elevated to the status of "principles." It is true that modern land and naval campaigns bear certain marked similarities in broad outline to those of earlier times, but these similarities, while important, can usually be described in absurdly simple terms.

The Chinese general Sun Tzu wrote about 500 B.C. that the essence of war is deception, by which he meant simply that it is well to keep your enemy guessing about your intentions and preferably to make him guess wrongly; by doing so you may strike him when and where he is least prepared. No one can deny the universal validity of this idea or that it is basic to success in most military enterprises, but neither can one deny that it is an intellectual commonplace. It may be important enough to merit being regarded reverently as the "principle of surprise," but it is hardly an abstruse point to be comprehended only by specialists. It is true that many of the fundamental ideas of strategy are not

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obvious until they are pointed out—there would otherwise be no purpose in this book—but all are easily understood by an alert mind. There is no need for a complicated terminology in strategy.

However, to say that the basic principles of war are easy to understand is not to say that it is easy to comprehend the finer points, or what is more important, to determine upon a wise plan of strategy and then carry it out. The great commander must of course have a profound insight into all the ramifications of strategic principle, but that is only the first requirement of military leadership. He must also thoroughly understand tactics, which with modern arms is bound to be exceedingly complex and to require long training and experience. He will perforce have become acquainted with the omnipresent problems of supply, or "logistics," which his staff must solve under his leadership. He must know human nature, and he must have certain qualities of character and personality which transcend mere knowledge. He must be able to stick to his course despite a thousand distractions and political pressures and yet be sufficiently elastic to recognize when a change in circumstances demands a change in plan. He must above all be able to see intuitively through the ever-prevalent "fog of war" and to make adjustment to its inevitable shocks and surprises.

Unfortunately, the very preoccupation of commanders with specific and inevitably complex problems sometimes tends to make them impatient with the age-old verities. Long-tested doctrines which are utterly simple are rejected in part because of their very simplicity, and in part too because of the dogma of innovation so prevalent in our age. We live in a time when the basic theories of naval warfare are being rejected out of hand by responsible officers on the wholly unwarranted assumption that they do not fit modern conditions. One can say about theory what Mahan said of material: "It is possible to be too quick in discarding as well as too slow in adopting."

Naval warfare differs from land warfare in the objectives aimed at, the implements used, and the characteristics of the domain on which it is waged. These are major determinants indeed, and we

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must therefore expect maritime strategy to differ materially from the strategy of land warfare. Certain ideas are common to both, but it is a mistake to carry over wholesale into the realm of the sea, as some writers have attempted to do, concepts which govern the conduct of war on land. The purpose of naval operations is usually much more limited than that of land warfare; as a rule navies exist chiefly to aid and sustain armies and air forces, and it is the latter which achieve the final decision. The warship, which is still the chief instrument of sea power, has no counterpart among the implements of land warfare for mobility and for tactical and strategic independence—the tank, for example, falls far short of it in self-sufficiency. Finally, the sea has few of the terrestrial complexities of land. It has nothing resembling railroads or highways; it has no mountains, forests, or rivers; it has no centers of population or industry. It is only a flat waste to be traversed, and so far as nature is concerned it is almost uniformly traversable throughout. True, different areas of the sea vary tremendously in strategic importance, but these variations are imposed upon the maritime areas by the lands which delimit them.

In saying that sea power is intended to control transportation—or communications, as military men prefer to call it—over the seas during wartime, we mean that it fulfils the following functions:

(a) It protects the transfer over water of land and air forces and their supplies to those areas where they may be used effectively against enemy forces. This may mean bringing an army to a hostile coast, which is sea-borne invasion, or to a friendly shore for operations in nearby territories.

(b) It protects also the transfer of the commodities of ordinary sea-borne trade, including industrial goods and what are generally termed "strategic raw materials." Considering the complex technology of modern war, this falls not far short of including all raw materials.

(c) It prevents the enemy from using the sea to transport his own armies on a large scale. This means, among other things,

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that it defends one's homeland and overseas territories against invasion.

(d) It exerts military-economic pressure on the enemy by preventing him from importing overseas commodities which are scarce or lacking in the region under his control. It prevents him also from exporting his products, the proceeds of which might be used to pay for commodities received from contiguous neutrals or for various services (propaganda, etc.) abroad. In modern times it exerts also a none-too-subtle pressure directly upon neutrals, to prevent them from trading unduly with the enemy. A navy also adds to the strain upon the enemy's system of internal transportation by interfering with coastwise or other shipping which normally relieves the burden on his internal transport.

The only other important use of a navy is as a mobile heavy artillery (or aircraft base) in the direct assault against land objectives, either in covering a landing, in cooperating with armies already ashore but operating near the coast, or merely in the independent bombardment of enemy coastal installations. British strategists have long had a fondness for land campaigns which enable them to utilize the great firepower of their fleet, since it enables British armies—always small during the early part of a war—to be effective far beyond their numerical strength. The British offensives in Libya during 1941 and 1942 illustrated this type of strategy, as did the later campaigns in Sicily and Italy.

When war began in Europe in 1939 naval bombardment of hostile shores was supposed by many to be, because of the airplane, an obsolete form of war; but World War II has in fact seen bombardments from the sea in much greater number and on a far heavier scale than any other war in history. Speaking on February 22, 1944, Mr. Churchill stated that since the beginning of the preceding year ships of the Royal Navy alone had "bombarded the enemy coast on 716 occasions." During that same period the American Navy had made an almost daily routine of blasting Japanese positions in the Pacific, and at Kwajalein Atoll had loosed perhaps the most intense and concentrated bombardment up to that time, whether on land or sea. But even that bombard-

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ment paled against the demonstration which began on June 6, 1944, when the naval forces which opened the assault on the French Channel coast fired some 2,000 tons of shells in the first ten or twenty minutes of bombardment and continued thereafter for many days to give close and invaluable support to the troops whose landings they had made possible.

However, before one can understand how a navy fulfils these various functions, one must examine the instruments which make up a navy. The tools one uses for a job have certain potentialities and certain limitations, which together determine the scope of one's operations. The story of sea power at work is told in terms of ships, guns, torpedoes, and bombers, and upon the characteristics of these tools may depend the survival of nations.

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1 THE NEW ENVIRONMENT

Sea Power and Political Influence

HEDLEY BULL

Sea power can most usefully be defined as military power that is brought to bear at sea: on the surface of the sea, underneath it or in the air above it. It has often been argued – most recently by Admiral Gorshkov¹ – that a nation's sea power is determined not only by the weapons and armed forces with which it can affect events at sea but also by its merchant marine, its fishing and oceanographic fleets, and its maritime outlook and tradition. It is true that these civil maritime activities can become vital ingredients in a nation's ability to exercise military power at sea, for example when merchant ships carry troops and supplies in wartime, or trawlers and scientific vessels collect intelligence in peacetime, but they are not inherently instruments of armed force, and at this conference it is upon sea power as a form of military power that we need to focus our attention.

According to this definition of sea power, we need to consider not only warships and the other components of a modern navy but also all other kinds of military power that can be brought to bear at sea – whether they derive from the land, the air above the land, or outer space. It is a commonplace that sea-based forces, land forces and air forces now operate in all environments, not merely in the one after which they are named. As Laurence Martin and others have pointed out, sea power now appears to be difficult to separate from land and air power, since a naval vessel at sea has to face threats from the land and the air as well as from other

naval vessels, and – if it is a ballistic missile submarine or a strike carrier – it may be concerned with the bombardment of targets deep inland.² But if we define sea power in terms of a distinct area at sea where military power is brought to bear, rather than an area or environment where military power is based or from which it is projected, then we shall have no difficulty in recognizing our subject and demarcating its boundaries.

There are three questions worth asking about sea power. First, what political purposes does sea power serve? Why do nations seek to exercise military power at sea? Secondly, how does sea power promote these purposes? In what ways do nations use their sea power to further their political objectives? Thirdly and more particularly – given that ours is an age in which the unlimited or unrestrained use of military power, at least between advanced states, is incapable of furthering political objectives, at sea or anywhere else – how can sea power be used as an instrument of foreign policy in times of peace, or at all events in the absence of major war? What are the possibilities of 'gunboat diplomacy'?

Why Do States Want Sea Power?

In considering why nations seek to possess military power at sea we must begin with the answer given to this question by Admiral Mahan. He perceived the sea as 'a great highway' or 'a wide common' which provides nations having access to it with a means of transport that is easier and cheaper than any which exists across

¹ S. G. Gorshkov, 'Navies in War and Peace', a series of articles in *Morskoi Sbornik* (Naval Digest) between February 1973 and February 1973. A translation appeared in *United States Naval Institute Proceedings*, January–November 1974.

² L. W. Martin, *The Sea in Modern Strategy* (London: Chatto & Windus for the IISS, 1967).

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land.³ It was her effective use of the sea for transport, for both commercial and military purposes, that was the source of Britain's wealth and political stature, and it was Mahan's thesis that no nation could in future aspire to be a great power without learning from Britain's example. Navies, in Mahan's view, had two purposes. The first was to protect commerce, to ensure that the trade routes across the oceans remained available. The second was what Mahan, who was strongly in favour of it, did not hesitate to call aggression – the use of naval force to acquire trading stations, colonies and bases in distant lands.

The protection of commerce in peacetime, to which we must add the protection of sea lines of communication in wartime, remains a basic purpose of states in seeking to exercise military power at sea. Dr Schlesinger used Mahan's own phrase in his 1976–7 Posture Statement when he wrote: 'The seas have been and remain – despite the continuing revolution in air transportation – the great highway upon which, in peace and war, vast quantities of goods must travel.'⁴ Though states today vary enormously in the degree of their interest in sea lines of communication and, even more, in their ability to protect them, the safeguarding of sea lines of communication is, of course, a special preoccupation of the United States and her allies, and every state that possesses sea power is concerned, at least within its home waters, with preserving its own use of the sea as a means of communication and denying it to adversaries as a way of attack.

We have also to recognize the continuing importance of the objective which Mahan called aggression. States today no longer use sea power to seize colonies; they experience inhibitions, unknown in Mahan's time, in overtly coercing weak states; and they do not describe their actions as aggression. But states which have ocean-going navies use 'the great highway' not only negatively to ward off threats to their lines of communication, but also positively to bring military power to bear in distant waters in order to support local clients, coerce local enemies, or neutralize one another's ability to act in the area.

³ A. T. Mahan, *The Influence of Seapower upon History, 1660–1783* (1890) (London: Methuen, 1965), chapter I.

⁴ James R. Schlesinger, *Annual Defense Department Report FY 1976 and FY 1977* (Washington: USGPO, 1975), p. III, 20.

Whether we regard these uses of sea power as good or bad, they illustrate the relationship of dominance and dependence that exists between the handful of states that can resort to them and the rest of international society which cannot. It is no accident that the era of European imperialism was also the era of European dominance at sea, and in the present era of Western and Soviet hegemony, of 'neo-colonialism' and 'social imperialism', the exercise of superior sea power is also basic.

Mahan's answer to the question why nations wish to exercise military power at sea therefore remains valid today. But by itself his answer is incomplete, for at the present time there are two other basic objectives underlying the exercise of sea power, neither of which depends upon the sea's function as a highway or means of transport. First, some nations exercise sea power in order to deploy strategic weapons systems at sea, or to take counter-measures against the strategic weapons systems of their opponents. Naval bombardment of the shore has long been an aspect of sea power, but with the emergence of seaborne strategic weapons systems – first the American nuclear-equipped strike carrier forces and then the ballistic missile submarine fleets of the United States, the Soviet Union, Britain and France – there arose a fundamentally new reason for having sea power. Weapons systems of this kind – the so-called seaborne strategic deterrent forces – are not, according to my definition, forms of sea power at all. Their function is not to bring military power to bear at sea, but to use the sea as a base from which to threaten strategic targets on land. But their existence presupposes sea power and provides it with a distinct purpose and rationale. Countries wishing to deploy seaborne strategic deterrent forces need to shield them from detection, defend them from attack, and secure the ocean space in which they can move about. Countries threatened by seaborne strategic deterrent forces are impelled to seek the means of detecting and destroying them. Early in World War II Bernard Brodie – closely following Mahan's logic – wrote that, 'if in future the greater part of ocean transport is carried in aircraft rather than in ships, ... sea power as such will cease to have meaning'.⁵

⁵ Bernard Brodie, *A Guide to Naval Strategy* (1942) (4th ed. Princeton: Princeton U.P., 1958), p. 2.

Today this is no longer the case: if, for some reason, transport by sea ceased to exist, nations would not lose interest in sea power, but would remain vitally concerned to use it to maintain their seaborne deterrent forces or to undermine those of their opponents.

The second objective has become obvious only in the last decade. States seek to exert military power at sea in order to acquire or enlarge their share of the sea's resources, or protect it against threats from others. As well as a means of transport, the sea has always been viewed as a repository of resources, most notably seafood, and the protection of fisheries has long been a minor function of navies. But our new consciousness of the sea as a major source of the world's food, energy and industrial raw materials is transforming our sense of what sea power is for. On the one hand, the march of technology increases the possibilities of removing resources from the sea, in terms of ocean farming, exploiting off-shore oil and gas, or gathering nodules from the deep sea-bed. On the other hand, the mounting pressure of population growth and expectations of higher living standards increase our sense of the scarcity of these resources and the urgency of staking out claims in the coming scramble.

More than three centuries ago John Selden sought to combat the arguments that had been presented by Grotius in *Mare Liberum* by contending that the sea in the law of nations was capable of private dominion and property, just as was the land, and that the King of Great Britain was lord of the seas flowing about his land dominions. One of the arguments Selden rejected in his *Mare Clausum* was that because the sea was inexhaustible in its abundance no one can be damaged by another's use of it. He contended that use of the sea by others, especially when it contained not only fish but pearls and coral, did in fact reduce one's ability to profit from it: 'Yea, the plenitude of such seas is lessened every hour, no otherwise than that of mines of metal, quarries of stone or gardens, when their treasures and fruits are taken away.'⁹ This is the point of view that helps to shape the present movement for enclosure of the seas, expressed in demands for the extension of

territorial waters and qualification of rights of innocent passage within them, for zones of exclusive economic rights stretching to 200 miles or more from the coast, and for the limitation of traditional freedoms on the remaining high seas, for example, through the establishment of an international authority over the deep sea-bed that would distribute its resources equitably.

These demands may or may not result in the establishment of new rights in an agreed and comprehensive law of the sea. If they do, nations will still seek to exert military power at sea to ensure that these rights are upheld. If they do not, nations will employ military force in any case to advance their demands in the anarchical situation that will prevail. Along with the scramble for legal rights over the resources of the sea and the sea-bed at the Law of the Sea Conference, there is another, less publicized, scramble for the military instruments that will enable nations to make good their claims: patrol boats, surveillance aircraft, anti-ship missiles, attack submarines. As the long arms of maritime nations reach out across the sea and meet, there arises at sea a new source of international conflict which previously existed only on land: disputed frontiers. Hanging over this conflict over the sea's resources is also the spectre of a new mercantilism – the use of force not to defend resources already possessed and legally owned but to seize resources belonging to others – a spectre that has grown more menacing as a consequence of Dr Kissinger's statement of 2 January 1975 alluding to the possibility of the United States seizing oil-production facilities in the Persian Gulf. Once again, even if – as Bernard Brodie speculated – ocean transport were to disappear, and Mahan's concept of the purpose of sea power with it, in their interests in the sea's resources nations today would still find a quite independent reason for seeking to exercise military power at sea.

How do States use Sea Power?

Given that nations seek sea power for these purposes, how do they use it to promote them? Here again we must begin with Mahan. According to him, the principle which should govern warfare at sea – as valid in the age of steamships as it had been in the age of the galley and the sailing ship – was the attainment of mastery of the sea. Naval warfare was a contest for

⁹ John Selden, *Mare Clausum: The Right and Dominion of the Sea* (1635), (trans. J. H. Gent, London 1663), p. 141.

supremacy, and the objective was to drive the enemy's naval and merchant vessels off the oceans so as to keep the great highway open for oneself and deny it to one's opponent. The way to accomplish this objective was through the maintenance of a great navy, and especially a superior fleet of capital ships, able to crush the adversary. Mahan recognized that no navy, however great, could exercise absolute command over all of the seas all of the time. But he spoke of closing the routes by which ships moved to and from the enemy's shores, and of allowing the enemy to appear on the seas only as a fugitive. This is the theory of sea power that has come in turn to fascinate Britain, the United States, the Kaiser's Germany and, according to some interpreters, the Soviet Union.

Today the idea is very much alive. 'Mastery of the sea' appears to be an accurate description of the position the United States won for herself in the course of World War II, and enjoyed for the first two decades after it. During this period the US Navy, it is true, was preoccupied not with driving other fleets from the oceans but with strategic nuclear deterrence and participation in limited wars on land. But this was only because its supremacy at sea was so assured that measures taken to preserve it – such as the effort to secure Atlantic and Pacific sea lanes against the possibility of Soviet submarine attack – did not have to be treated as the most urgent priority. More recently, the emergence of a Soviet Navy which is at least seriously able to contest the supremacy of the seas has restored the latter objective to something of its former primacy.

An analogy may be drawn between the Soviet Union's challenge to the American command of the seas since the late 1960s and Imperial Germany's challenge to Britain's naval position after the enactment of the Navy Law of 1898. In both cases the dominant land-power, based on Mackinder's 'heartland', creates a threat to the dominant sea-power by discarding traditional strategies of coastal defence and *guerre de course* and instead constructing an ocean-going 'great navy'. In both cases the challenging power is prodded into this course by an outstanding and dedicated naval leader – in the one case Admiral Gorshkov, in the other Admiral von Tirpitz – deeply fascinated by the history of the use of sea power by the Anglo-Saxon coun-

tries, displaying the same mixture of resentment and envy of their position, seeking to arouse his country to a sense of its naval destiny, and fired by Mahan's doctrine that sea power is a necessary condition of great-powerhood.

In both cases the challenger produces in the dominant Anglo-Saxon sea-power a sense of righteous indignation that the existing distribution of power in the oceans should be disturbed. Britain argued that for her, given her dependence on seaborne trade and her position at the centre of a maritime empire, sea power was a necessity, whereas for Germany it was a luxury.⁷ Dr Schlesinger and Admiral Zumwalt echo the same sentiments: the United States stands at the centre of an alliance system that depends vitally on sea lines of communication, while also being heavily dependent on trade herself, if less so than Britain; the Soviet Union is not in this position.⁸ In both cases the argument of the Anglo-Saxon power is quite correct – but only on the assumption that the existing distribution of power should not be disturbed. England, Tirpitz told the Kaiser in his Memorandum of June 1897, is 'the enemy against which we most urgently require a certain measure of naval force as a political power factor'.⁹ 'Could the Soviet Union agree to an age-long domination of the seas and oceans by the traditional Western sea-powers?' asks Admiral Gorshkov. 'Of course not!'¹⁰

I shall leave it to others more expert than myself to argue such questions as whether the Soviet Union, with her early lead in anti-ship missiles, possesses a genuine capacity to face the United States in sustained combat at sea, or still suffers from decisive weaknesses in sea-based air power, support facilities and ship design; whether her relative weakness in her capacity to project power ashore represents a real handicap in sea power today, and if so whether it is likely to be remedied; whether the Soviet Union will retain her position as the power with

⁷ See, for example, Winston Churchill, *The World Crisis 1911-1918* (London: Four Square Books, 1960), p. 75.

⁸ James R. Schlesinger, *op. cit.* in note 4, I, 20; Elmo R. Zumwalt, '20th Century Mahan', *United States Naval Institute Proceedings*, November 1974.

⁹ Jonathan Steinberg, *Yesterday's Deterrent: Tirpitz and the Birth of the German Battle Fleet* (London: Macdonald 1965), p. 209.

¹⁰ S. G. Gorshkov, *op. cit.*, in note 1, *United States Naval Institute Proceedings*, November 1974, p. 60.

the largest and most modern surface fleet, or will lose it as a consequence of impending block obsolescence and of United States shipbuilding programmes already underway; whether the Soviet Union's global naval presence has been sought deliberately as a matter of policy, or is the accidental by-product of attempts to counter Western carrier-based and submarine-based nuclear threats; and whether Admiral Gorshkov's articles are a statement of Soviet policy or a plea for a policy which the Soviet Union might never adopt. It is beyond dispute that the Soviet Union now has the capacity to establish command of the seas, at least in some theatres important to her, and to deny to the United States in the oceans at large that unquestioned or unqualified mastery of the seas which she has enjoyed since the defeat of Japan. It has also at least become thinkable that the Soviet Union might one day establish command of the seas in a positive sense. This is an idea, however, which leads us back to the analogy with Imperial Germany. Mahan held that no country could hope to become dominant on both land and sea simultaneously, and that a land-power which faced hostile neighbours on two fronts could not hope to compete at sea with a power having Britain's geographical advantages. The Soviet Union has to face the dominant sea-power while encumbered with land enemies just as preoccupying as Imperial Germany's, with a maritime and naval tradition which, for all Admiral Gorshkov's attempts to boost it, has played a peripheral role in her history, and also - unlike Imperial Germany - from a position of gross economic inferiority.

There is, however, a deeper question to consider, and that is whether this command of the seas, for which the two super-powers are competing, is still a rational and feasible goal for sea power in the late twentieth century. Mahan insisted that the concept of mastery of the sea transcends any particular technology. If mastery in World War I was decided principally by the battleship and in World War II by the aircraft carrier, today it is sometimes argued that the capital ship of the future is the nuclear-powered attack submarine. Able, when equipped with anti-ship missiles, to make the surface of the oceans untenable for naval and merchant vessels alike, enjoying unique sanctuary because it is virtually undetectable while submerged, and

combining the speed of a modern surface vessel with the endurance of a sailing ship and the manoeuvrability of a galley, the nuclear-powered attack submarine, it is said, will be the only answer to its kind.¹¹

But, in the first place, whatever weapons systems are used to establish command of the sea, today it must involve not only the surface but the sub-surface and the air. Any command that is achieved is thus likely to be less absolute, more limited in scope and duration, than in Mahan's day - the consideration that appears to lie behind the tendency to replace the term 'command' with the more fashionable concept of 'sea control'. In the second place, for most of the world's navies, as much in Mahan's time as today, the only seas which it is reasonable to seek to command - or, for that matter, to control - except in co-operation with great-power allies, are their own coastal waters and sea approaches. In future, for reasons I shall consider later, the compulsion on all navies to give priority to the defence of their own territorial waters and economic zones, and the inhibitions placed in the way of blue-water navies seeking to range over the world's oceans may become so great that Mahan's concept of mastery of the world's oceans as a whole may go into decline. In the third place, command in Mahan's sense - the driving of enemy battle fleets from the seas - is an objective that presupposes a war fought *à outrance*. This may be the pattern of a naval conflict between non-nuclear powers, such as formed part of the Indo-Pakistani wars of 1965 and 1971. But between nuclear powers a major war at sea is difficult to envisage. Such a major war, it is sometimes imagined, might form part of a 'general war' involving a strategic nuclear exchange between the super-powers, but in such a war a slow-moving struggle for command of the seas is likely to be rendered pointless before it is under way. There have been speculations that a limited war might be fought at sea by nuclear powers, but the interests at stake in such a conflict would be so vital, especially for the Western powers, that it is hard to conceive that the strategic nuclear threshold would not be crossed. The

¹¹ For this thesis see Robert E. Walters, *The Nuclear Trap: an Escape Route* (Harmondsworth: Penguin Books, 1974); and Paul Cohen, 'The Erosion of Surface Naval Power', *Foreign Affairs*, January 1971.

conflict between the super-powers at sea has so far been conducted not at the level of war but at the level of threat and manoeuvre against each other, and with limited use of force against third parties. And at this level the concept of command – or perhaps even control – is not applicable.

How can Sea Power be used as an Instrument of Diplomacy?

How, then, can sea power be used as an instrument of diplomacy in times of peace, or at all events in the absence of major war? We need to focus our attention upon military power at sea being used in various ways to advance political objectives: by supporting friends and clients, by coercing enemies, by neutralizing similar activities by other naval powers, by exerting a more diffuse influence in politically ambiguous situations in which even one's own objectives may be uncertain, or merely by advertising one's sea power or 'showing the flag'. 'Gunboat diplomacy' is not a good term for these uses of sea power, taken as a whole, because of its associations with one particular form of naval diplomacy – the coercion of weak states by strong ones for purposes such as the protection of their nationals or property – a form that has long been in decline.

As an instrument of diplomacy, sea power has long been thought to possess certain classical advantages *vis-à-vis* land power and, more recently, air power. The first of these advantages is its flexibility: a naval force can be sent and withdrawn, and its size and activities varied, with a higher expectation that it will remain subject to control than is possible when ground forces are committed. The second is its visibility: by being seen on the high seas or in foreign ports a navy can convey threats, provide reassurance, or earn prestige in a way that troops or aircraft in their home bases cannot do. The third is its universality or pervasiveness: the fact that the seas, by contrast with the land and the air, are an international medium allows naval vessels to reach distant countries independently of nearby bases and, as Eyre Crowe wrote in his celebrated memorandum, makes a state possessed of sea power the neighbour of every other country that is accessible by sea.

There are special reasons why these classical advantages of sea power are valued by the great

naval states today. The flexibility of navies is valued because of the fear of nuclear war and the belief that there is less risk of unintended expansion of a war when only naval forces are involved than where ground or air forces are used – partly for reasons of command and control, and partly because destruction confined to the sea is bound to be less than destruction which spreads to the land. To this we must add that, in Western countries at all events, the flexibility of sea power is appreciated also because of the fear that the use of ground forces in contested areas of the Third World will lead to uncontrollable involvements. The visibility of sea power – now much greater than ever before because of air and satellite coverage of the world's oceans, with the single important exception of submarine forces – is valued because of the cardinal importance attached in strategic doctrine today to exploiting the threat rather than the use of force. The universality or pervasiveness of sea power is valued because many of the vast array of bases around the world which were once available to the United States and her allies have largely disappeared, those that remain are rapidly becoming untenable, and new bases are not likely to be found, either by the Western powers or by the Soviet Union or other aspirants, at least on the old terms. It is true that sea power generates its own requirements for bases or other shore facilities, but these are declining with the progress of techniques for refuelling and replenishment at sea, and of satellite communications systems.

There is in fact at the present time renewed interest in the diplomatic use of sea power, expressed not only in Admiral Gorshkov's articles of 1972–3 and in American statements on naval policy in the last few years, but also in a growing analytical literature. James Cable has taught us to distinguish between those political uses of sea power that are definitive, those that are purposive, those that are catalytic and those that are merely expressive, and between ship operations, fleet operations and amphibious operations, and the 'simple' and 'superior' versions of each.¹² Edward Luttwak has put forward an account of what he calls naval suasion and invites us to distinguish

¹² James Cable, *Gunboat Diplomacy: Political Applications of Limited Naval Force* (London: Chatto & Windus for the IISS, 1970).

between those forms that are latent, in the sense that they are maintained simply by routine deployments, and those that are active, in the sense that they involve a deliberate attempt to invoke a specific reaction; between those that are coercive of unfriendly states and those that are supportive of friendly ones; between suasion that is directed towards deterrence and that which is aimed at 'compellence'; and between suasion that symbolizes naval force relevant to a particular military situation and suasion that symbolizes national power and commitment.¹³ Admiral Wegener has suggested that alongside the theory of the use of naval forces in situations of war, in which mastery of the sea is the central concept, there may be elaborated a parallel theory of their use in situations of non-war, in which the key concept is that of a 'maritime presence'.¹⁴ This burgeoning literature is replete with suggestions for strengthening the political direction and control of naval operations, for increasing their political sophistication and sensitivity, and for reshaping naval training and the design of warships accordingly.

It seems quite possible, however, that the period we are now entering will be one in which opportunities for the diplomatic use of naval forces, at least for the great powers, will be severely circumscribed. In the first place, the United States and the Soviet Union will be inhibited by one another in exercises of this kind. The long era in which the United States was free to deploy her fleets in strategic positions, to land ground forces, to bombard the coasts or command the airspace within range of her carrier task forces without fear of significant opposition at sea, has come to an end. The highest expression of that American naval ascendancy – the coercion of a great power at sea in the Cuban missile crisis – could not recur. The Soviet Union, practising the strategy which her Western interpreters call 'sea denial', has shown repeatedly in the Mediterranean, the north-west Pacific, the Indian Ocean and even the Caribbean that the United States acts differently if Soviet naval forces are present. It is true, as Luttwak has

argued, that the decline of bipolarity and the loosening of alliance connections imply that the two super-powers are less automatically committed to frustrating one another's interventions in the Third World, and that opportunities for naval suasion may in consequence increase: he suggests, for example, that the United States might do nothing to inhibit Soviet naval suasion of Albania.¹⁵

It is also true that in the era of detente the policies of the two super-powers are aligned at many points, and that one of these points is their common commitment to traditional doctrines of the freedom of the high seas and rights of innocent passage through territorial waters; in relation to the issue of international passage through enclosed straits, for example, the United States and the Soviet Union may be concerned not only not to inhibit one another, but positively to co-operate. Nevertheless, the rise of Soviet naval power has produced a situation in which the United States' or her allies' recourse to naval suasion is conditional in a way that it was not before. The United States and the Soviet Union will not be antagonists at every point in the business of naval suasion, but they will be able to indulge in it only by one another's leave. The two super-powers, of course, will be able to inhibit one another at sea only by continuous efforts to do so, and so naval diplomacy directed towards neutralizing one another's efforts seems likely to become a major preoccupation for both. But only if these efforts at neutralization fail or are not made can naval suasion by either super-power be seriously attempted.

In the second place, the two super-powers will be increasingly inhibited by the weaker coastal states, the traditional victims of this kind of naval policy. These states have already so altered the international legal rules relating to the use of force and magnified the costs of breaking them as to have precluded the older kind of 'gunboat diplomacy', which assumed a set of rules weighted in favour of the strong European powers and a division of the world into fully and partially sovereign states. They will be able to appeal to the prevailing Third World animus against interference by the rich industrial states of East and West, a spirit reflected in General Assembly majorities, supported by a China not yet powerful enough on the seas to engage

¹³ Edward Luttwak: *The Political Uses of Sea Power*, Studies in International Affairs No. 23 (Baltimore: Johns Hopkins U.P., 1974).

¹⁴ Edward Wegener, 'Theory of Naval Strategy in the Nuclear Age', *United States Naval Institute Proceedings*, May 1972.

¹⁵ *Ibid.*, p. 68.

in this kind of interference in her own right, and solemnized in zones of peace, such as that proclaimed since 1972 in relation to the Indian Ocean. The coastal states, moreover, will in many cases have the military power to withstand threats directed at them, at least when these threats are made in their own home waters and by naval means alone. It is now widely argued that the short-range surface-to-surface missile, directed at ships from the shore or from small combatant vessels, poses a threat to which no response is available at an acceptable cost, as was demonstrated in the sinking of the *Eilat* in 1967 and of Pakistani vessels in 1971. In 1973 it was estimated that more than three dozen navies either possessed or had ordered such anti-ship missiles to be deployed on small combatant vessels.¹⁸ The *Pueblo* incident of 1968, as Cable notes, and more recently the seizure of the *Mayaguez* by Cambodia demonstrate that the definitive use of naval force may be a resort of the weak against the strong. It would be wrong to assume that weak coastal states will continue to afford the great naval powers the kind of sanctuary enjoyed by American naval forces during the Vietnam war, or to imagine that a coastal state, if directly threatened, would necessarily feel the same inhibitions about attacking the ships of a great power that the great powers feel in relation to one another. Thus it seems quite possible that, if the *Enterprise* task force had actually attacked India in 1971, Indian anti-ship missiles might have tried to sink it.

In the third place, the super-powers – and indeed others – will be inhibited from resorting to sea power for diplomatic purposes by the progressive enclosure of the oceans. Given prevailing doctrines concerning the limits of territorial waters, the drawing of baselines, the territorial rights of archipelagoes and exclusive economic zones, perhaps one-third of what under the old three-mile limit was regarded as high seas may cease to be so in future. Moreover, in what remains of the high seas the traditional freedoms – to navigate, to fish, to lay pipelines, to conduct research, to dump, or now to exploit the sea-bed – will be increasingly subject to challenge. This enclosure movement seems destined to proceed, irrespective of the outcome of

the present Law of the Sea Conference or its successors, for its motive force is provided by unilateral claims, such as the Truman Declaration of 1945, which initiated the present phase of enclosure, by bilateral or regional agreements, such as those which already abound concerning the continental shelf, and, at a deeper level, by the processes of technological advance, economic demand and national rivalry.

Clearly, powerful fleets cannot be prevented from sailing the seas merely by states having legal rights, still less by states claiming rights that are not conceded. But the political and psychological obstacles to sending warships into the territorial waters or economic zones of a power that regards their presence there as illegal may be greater than our inherited conceptions of the freedom of the seas allow us to imagine. The scale of a nation's activities within the waters and on the sea-bed to which it lays claim, the enormous stake it may have in the resources it is gathering from them, the new sense of maritime frontiers that is developing, and the naval forces committed to defending them may produce a feeling of the inviolability of national sovereignty over the sea – a maritime territorial imperative much closer to the feeling which nations have had previously only about their sovereignty over land. At the same time the freedom of the great powers to use the shrinking high seas for military purposes – a freedom which is already qualified by the Sea-bed Treaty and demands for it to be extended beyond prohibiting the emplacement of weapons of mass destruction on the sea-bed, and by legal restrictions on the use of force on the high seas – may be further limited, at least indirectly, by the proposed international sea-bed authority and by measures of pollution control.

Elizabeth Young has argued that the enclosure of the seas imposes a form of *de facto* arms control, the import of which is increasingly to confine military activities at sea within a nation's own territorial waters. She contends that the great powers will be restrained from even 'showing the flag' by both physical obstacles and the multitude of jurisdictional boundaries that they will encounter. She speculates that the traditional 'maritime presence' may become 'a more folkloristic manifestation to be performed only in the territorial waters of already friendly and aligned states', while other countries would

¹⁸ Arthur Davidson Baker III, 'Small Combatants – 1973', *United States Naval Institute Proceedings*, May 1973.

be 'no more willing to welcome a naval contingent than Switzerland or Sweden would be to greet a regiment of Soviet tanks or a wing of B-52s'.¹⁷ She suggests that the Soviet Union, the last great defender of the freedom of the seas, may have arrived on the scene with her blue-water fleet just at the moment when this particular instrument of foreign policy is ceasing to be viable. Perhaps these speculations underestimate the determination of the great powers, even at the cost of their political influence among coastal states, to protect sea lanes, to secure their seaborne deterrent forces or forcibly to enlarge their share of resources. Perhaps they overlook the possibility that countries such as China, India or Iran, now seeking to restrict the use of the high seas by the great powers, will change their policies if and when they acquire blue-water fleets of their own. But Elizabeth Young's main point is hard to deny. Enclosure of the oceans is threatening to deprive sea power of its traditional quality of universality or pervasiveness.

Is Traditional Sea Power Feasible Today?

If what I have been saying is correct, there is at least grave doubt as to whether the kind of sea power traditionally pursued by the Western powers, and now apparently sought by the Soviet Union - directed towards command of the seas in wartime and paramount political influence over distant coastal states in peacetime - can continue to be exercised. Before I conclude, therefore, there is one other question I wish to place on our agenda. That is whether the exercise of this kind of dominance at sea can any longer have a place in the maintenance of a viable international order. British naval ascendancy in the last century formed part of what was then a viable international order because its benefits

were widely shared, at least among the European nations. Today no international order can be viable that is not based on a wider consensus than can be found among the Western powers, or between these powers and the Soviet Union. A consensus will have to be sought that embraces the Third World, whose alienation from the present international order cannot be brought to an end without a radical redistribution - not merely, as we are so often told, of wealth and resources, but also of political and military power. The great powers' pursuit of the traditional form of global naval ascendancy, viewed by the Third World as the source of its historical subjection and a bulwark of its present status of dependence, flies in the face of this requirement.

Of course, it may be argued that at the present time all talk of a viable international order is purely visionary; that the elements of order that exist in world politics today are rapidly breaking down; and that the objective for the Western powers, as for others, in exercising their sea power, can only be to survive in the divided and unmanageable international system now so widely predicted. The present tendency of the Western countries to place greater reliance on their sea power, behind which - after the last troops have been withdrawn and the last refugees evacuated - they can rest secure and uncontaminated, is itself an index of the growing social distance between the West and the Third World. It is easy to visualize that, as the Grotian regime of the freedom of the seas, which provided an order of sorts, gives place not to a curbing of freedoms by an international maritime authority, or even to an agreed and just partition of the oceans, but to an undignified scramble, all nations with sea power may come to exercise it more ruthlessly than they have done in the recent past. I hope, however, that in our discussion of the feasibility of sea power as an instrument for achieving political objectives we shall not fail to consider how far these political objectives themselves are valid.

¹⁷ Elizabeth Young, 'Military Implications of the Law of the Sea', *Survival*, November-December 1974, p. 267. See also her 'To Guard the Sea', *Foreign Affairs*, October 1971.

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CHAPTER 18. Continental Doctrines of Sea Power

BY THEODORE ROPP

DESPITE the general acceptance of Admiral Mahan's theories in both the British and American navies, and with all due regard to his influence on German naval thought, his great works never entirely displaced the various continental schools of naval strategy. Although continental naval theorists have usually acknowledged their debt to him, he wrote little on their crucial naval problem—the means of countering British sea power with numerically inferior forces. Mahan's works were, in fact, intended partly to answer the arguments of the most original of these continental schools of thought, the *Jeune Ecole* of the French navy of the early 1880's. The *Jeune Ecole's* interest in commerce destroying has its background in a long series of unsuccessful French attempts to defeat England by the *guerre de course* in the wars of the eighteenth century,¹ but their basic ideas came from the wars of 1854 to 1871, the first to test the new weapons of the industrial era. The defeat of France in 1870-1871 by a state with hardly any navy placed naval theorists on the defensive. In both France and Germany it was considered as confirmation of the traditional views of military men that sea power was a matter concerning trade and colonies and that, at best, it had only a secondary role to play in the relations of the great European states. Naval personnel and naval ordnance had manned the forts of Paris after Sedan, but the navy as such had done little to avert defeat, and its blockade of the German coast had been a complete failure. Neutral steamers had entered the blockaded ports as easily as they had run the Union blockade of the Confederacy, while the French ironclads were able to maintain the blockade only by coaling under the lee of neutral Heligoland. The mines and small coast defense vessels which had proved so effective in the Crimean and American wars had sealed the mouths of the German rivers against naval attack. Landing operations, which had played an important part in the American Civil War, had been next to impossible in the face of the Prussian army's excellent railway system and its effective use for the movement of troop reserves.

As long as military men prepared for wars as short as those of 1866 or 1870, sea power played little part in European military thinking, and the navy remained a stepchild of continental strategy. Neglected in France, pampered in William II's Germany, the navy was in both instances regarded by orthodox military men in these countries as a stepchild. On the whole the *Jeune Ecole* agreed with this analysis. They knew that defeated France could not afford to build a navy as large as England's; and they agreed that a war of revenge on Germany would be fought primarily on land. A few French thinkers suggested hitting the Triple Alliance by a land and sea attack through Italy but

¹ Raoul Castex, *Synthèse de la guerre sous-marine de Pontchartrain à Tirpitz* (Paris, 1920).

this idea did not win wide support either in the 1880's or in 1939. A blockade of the traditional type was nearly impossible. In a short war neither France nor Germany would be seriously affected by blockade, even if one could be imposed; and the small sea-borne expeditionary forces of the Crimean period—60,000 men in the original attack—would have little effect on an up-to-date military power. Practically all of the naval operations of the mid-nineteenth century were coastal forays against little or no naval opposition and the strategists of this period had almost forgotten the importance of organized fleet action. It was then widely assumed that the day of great naval battles was past and that an inferior fleet would confine itself to remaining "in being." The strategic purpose of the small German fleet of the 1880's was coast defense; the sailing cruisers which protected German interests abroad could neither fight nor run from a modern enemy. Field Marshal Sir Henry Wilson's well known views of the uselessness of British sea power in an Anglo-French war with Germany reflected the orthodox continental military opinion of his period.²

To reinforce these general conclusions from the wars of the 1860's, the next decades saw the appearance of the high speed torpedo boat, the forerunner of the present-day destroyer. This weapon was the answer to the continental navy's financial problem, and was immediately recognized as invaluable for mobile coast defense. The torpedo boat crystallized the ideas of a whole generation of French naval thinkers, and the *Jeune Ecole's* leader, Admiral Théophile Aube, made it one of the foundations of his naval theory.³ His specific tactical suggestions were as premature as Mahan's were belated, but his works attracted a host of enthusiastic and uncritical followers.⁴ At the height of the torpedo boat craze, Germany, Austria-Hungary, and Russia abandoned their battleship programs, and the British admiralty felt obliged to apologize to parliament for finishing those already under construction.

As far as we can now tell from the accounts of peacetime maneuvers, the torpedo boat would have proved itself a formidable coastal weapon. The *Jeune Ecole's* hopes of terrorizing the coastal population of Italy or England by using torpedo craft to lob high explosives and incendiaries into their cities probably would have proved more illusory. Complete disregard of international law and naive estimates of the damage to be done by such indiscriminate attacks were similar to the arguments of many of the early air enthusiasts. But the torpedo boat was the first short range weapon to challenge the rule of the battleship; and, although the "Davids" have not yet driven the "Goliaths" from the seas, the latter's freedom of action has been appreciably curtailed. Military powers were commencing to extend their sovereignty to cover the seas around them. The French built special torpedo craft for operations between Corsica and North Africa and began a modern naval base system on both shores of the western Mediterranean.

² G. E. Tyler, *The British Army and the Continent, 1900-1914* (London, 1938), ch. VI.

³ His most important work is the series of articles collected in *A terre et à bord, notes d'un marin* (Paris, 1884).

⁴ Perhaps the best known was the journalist Gabriel Charmes, *La réforme de la marine* (Paris, 1886).

Italian naval theory in this period reflected this same general trend. Their huge battleships were primarily seagoing coast defenders, to break up French bombardments or landing operations. Their fast, lightly armored ships were not intended to win the command of the western Mediterranean from the more heavily armored French; they were a mobile fleet-in-being to render the French command of the sea tenuous. Outside the western Mediterranean the Italians spent little money and maintained no naval bases, but they hoped that in this single area they could neutralize French superiority.⁴

In spite of pretensions to world-wide diplomatic interests after 1898, the United States, too, confined its naval efforts to hemispheric defense. Within this area we have gradually become paramount through our overwhelming control of its naval bases. In the same way the Japanese have won the local command of the seas of East Asia.

In every case this process of regional control by other powers has weakened Britain's world maritime supremacy, and it is interesting therefore that Britain's first major naval allies were America, France, and Japan. As early as the Russo-Japanese war, some French thinkers felt that Indo-China could not be defended against a serious Japanese attack and the English began to discount the importance of Hongkong at about the same time.

These considerations were all, however, primarily defensive; there still remained the other problem of putting pressure on British sea power, to break the colonial and maritime monopoly which she had built and was still extending. There were a number of theoretical solutions, the first of which dates from the introduction of the steamship in the 1840's. The French dream was that all the delays and failures which had wrecked French invasion schemes for a century would end; French military power could be brought to bear directly on the enemy. Steam had "bridged the Channel," steamships would not have to wait for wind and tide, and the British could no longer blockade them in their ports. Although this trend of thought was less prominent in the 1880's than it had been thirty years before, the Japanese invasion of China in 1894 reopened the whole question. It was a favorite subject for French and German staff officers about the time that the Boer War was revealing the utter ineptitude of the pre-Haldane British army. The effects of this threat to British military theory are naturally outside the scope of this chapter, but many thinkers on both sides of the channel have long been concerned with it. At the very least, French strategists predicted, the threat of invasion would pin a large part of the British field army to the British Isles and cut down British pressure on the French colonies.

Admiral Aube, however, was only mildly interested in such invasion schemes; his highest card was the revival of the *guerre de course* against English merchant shipping. The sensational successes of the Confederate commerce destroyers had revived the traditional French enthusiasm for this type of warfare. Though some of Aube's arguments date back to the days of Louis XIV, there

⁴ Their most important theorist was the prolific writer Domenico Bonamico. Typical is *Il problema marittimo dell'Italia* (Turin, 1881).

were two new factors which promised success where all France's previous efforts had been failures. For the first time, England's whole economic structure depended on foreign food and raw materials. For the first time, as the blockade runners of the Civil War had also proved, England would be unable to confine the raiders to their bases. With some qualifications, these two factors are still the basis of modern commercial warfare. Britain is absolutely dependent on sea-borne supplies, and British sea power must give direct convoy and patrol protection to every ton of shipping moving into the islands. The efforts of the Royal Air Force, supplemented by the Eighth United States Air Force, to reestablish indirect protection by bombing U-boat bases and factories is one indication of the seriousness of this aspect of the problem.

The repeal of the Corn Laws and the disastrous cotton famine of the 1860's had made England's dependence of sea-borne food and raw materials perfectly clear. Aube's generation was the first to appreciate the real gravity to Britain of the problem of protecting her overseas supply lines. Mahan's and Tirpitz' appeals for the acquisition of colonies and foreign trade clouded this particular issue in both Germany and America. Nobody who advocated building up a great foreign commerce could be expected to stress the difficulty of protecting it. Only the *Jeune Ecole*, who assumed that France was self-sufficient, and their British contemporaries, who were faced with the problem of protecting an existing economic organism, have added much to the study of the *guerre de course*.

Much of the damage suffered by American shipping during the Civil War was due to an owners' panic; a similar panic might disrupt the whole of British economic life. The first proposals for national insurance against war shipping losses were supposed to give the government far too much power over business and many shipowners felt that their only salvation would be mass transfer to neutral flags. The economic disorganization attending such a panic was one of the *Jeune Ecole's* main strategic purposes. In view of the Union government's complete inactivity in a similar crisis and the French government's feeble economic policies during the siege of Paris, it is no wonder that many people expected the British merchant flag to disappear from the seas in wartime. Their views were reinforced by the enormous American claims for indirect damages in the *Alabama* case, while Britain's acceptance of the *Alabama* award seemed to show her fear of an American attack on her commerce. The *guerre de course* has always been the best known portion of the *Jeune Ecole's* strategic theory. Aube predicted that even torpedo craft would prey on merchant shipping in the Mediterranean and the Channel, in complete disregard of the rules of cruiser warfare. For nearly twenty years the *Jeune Ecole's* coast defense and cruiser combination was very important in continental naval theory. Its influence was greatest in France and the United States, the ancestral homes of the privateer and the monitor; but even the Russians made careful studies of the routes of British shipping and built the pirates *Rurik* and *Rossia* to match our fast *Columbia* and *Minneapolis*, or the French *Chateaurenault* and *Guichen*.

One of Mahan's main purposes was the refutation of the *Jeune Ecole's*

heresies, by appealing from the limited experiences of the wars of 1854 to 1870, to the wider history of the sailing period. Like many another great writer he served different functions in different countries. In America and Germany he was one of the great prophets of maritime and colonial imperialism. In France he restored the sound military principles of Jomini and Clausewitz, which the *Jeune Ecole* had completely forgotten. His insistence on battle and the importance of the organized force was a necessary corrective to the *Jeune Ecole's* extravagant enthusiasm for the latest technical wrinkles and their hopes of gaining a cheap victory by attacking only nonmilitary objectives. Their doctrine of "Shamelessly attack the weak, shamelessly fly from the strong," would have ended in complete military demoralization. Mahan, on the other hand, pointed to the offensive-defensive of the great Dutch sea fighters as the true policy for an inferior fleet. They had never ignored the English fleet but had sought to destroy portions of it by well-timed strategic concentration. Steam had greatly increased the chances of well-planned offensive actions of this type. Even if commerce destruction was the primary objective, Mahan's followers pointed out that it would have to be supported by attacks on the British battle force. Mahan's proof that, historically, commerce destroying had never been successful failed to deal with the *Jeune Ecole's* contention that conditions were now quite different. They simply remained convinced that technical changes do alter the principles of military and naval strategy.*

Bismarck's means of putting pressure on England's superior sea power were primarily diplomatic, a method seriously neglected by many naval authorities. It does not bolster theories of the world supremacy of sea power to show the British Empire of the 1880's—with a navy roughly equal to those of most of the rest of the world put together—giving ground to Bismarck in purely colonial matters. Even Mahan, naturally enough for an American of the 1880's, failed to appreciate adequately the connection between diplomatic and naval policy and the European balance of power. His remarks on diplomacy are too largely concerned with the mere acquisition of naval bases. He could see the results of the partition of China and he was anxious that America acquire equally good positions while the division of the world was going on. But, like most Americans of his day, he did not completely realize the importance of the forces working behind the scenes in the great European capitals. Our fears of German aggression in the Caribbean and certain aspects of our open door diplomacy show this same underestimation of the workings of the European state system. The founding fathers were more experienced, and so is our own generation, but both have had far more constant contact with European diplomacy than the Americans of Mahan's time. The importance of British sea power in checking continental military aggression in the New World is a commonplace of the 1940's, as it was of the 1820's. But the notion of the

* His most important French followers were Gabriel Darrieus, *War on the Sea* (Annapolis, 1909) and René Daveluy, *L'esprit de la guerre navale* (3 vols., Paris, 1909-1910). The leading Italian naval strategist was Giovanni Sechi, *Elementi di arte militare marittima* (2 vols., Leghorn, 1903-1906).

British navy as our own first line of defense scarcely figured in Mahan's elaborate arguments for Anglo-American friendship.

It must not be forgotten, however, that Bismarck's method of diplomatic pressure can be successful only for minor objectives, while Britain is threatened in other quarters by more dangerous enemies. His relatively modest colonial demands had to be balanced against the major threats of France and Russia in Asia and the Mediterranean. His diplomatic blackmail was successful as long as England regarded France and Russia as her most dangerous maritime and colonial rivals. It inevitably failed when English opinion began to think of Germany as her greatest potential enemy. This was the basic error of Tirpitz' famous *Riskogedanke*. His theory was formulated in a period when England was isolated between the Dual and Triple Alliances. His "risk" fleet needed only to be strong enough to hold the naval balance of power between England and the Franco-Russian combination. Its whole psychology reflects the kaiser's shining armor diplomacy.

When William's demands had driven England into colonial agreements with Russia and France, the German navy did not abandon a program which had been fitted to this specific diplomatic situation. The German fleet was technically close to perfection; its weakness lay in its high command. From the abolition of the German naval staff to give William personal control of naval policy (the exact condition which the general staff of the army had been established to prevent), the German navy was a royal toy. In 1914 William could think of no better use for it than to hold it in reserve for the peace conference, and more blackmail. The navy had no plans for an invasion of England, for a serious attack on English commerce, or even for the positive domination of the Baltic Sea. It did not even try to hinder the landing of British troops in France, though the right wing of the German army was the key to the whole Schlieffen plan. The world's second fleet spent four years defending the German coast. It fulfilled that function well enough—as well as the French fleet had done it in 1870, as well as the little German fleet of the 1880's would have done. The High Seas Fleet's fate at Scapa Flow in 1919 was peculiarly appropriate. Tirpitz had added battleship to battleship for exactly twenty years. At the end, the great pile of material which was designed to blackmail Britain into colonial concessions proved to be just so much scrap metal.

In the 1880's, the *guerre de course* had failed to win many advocates in Germany, partly because of her lack of foreign bases and the distance of her home bases from the main English trade routes. The same arguments were also used against it in Italy. In the German case this certainly delayed the adoption of commerce-destroying submarines, while the Italians show comparatively little interest even yet in this type of operation. When the submarine campaign did come, it seems to have been entirely improvised, a factor which must be remembered in any criticism of the British failure to meet it.⁷ The Nazi campaigns in Norway, Crete, and Africa are an odd contrast to the High

⁷ There seems to be no positive reason for doubting the official account of Admiral Spindler, *Der Handelskrieg mit U-Booten* (Berlin, 1932), vol. I, p. 8.

Seas Fleet's Scandinavian policy of 1914 to 1918. In its late discovery of commerce destruction by submarine and its failure to develop a more vigorous Baltic policy, the old German navy clearly revealed its uncertain appreciation of the basic ideas of the *Jeune Ecole*. Whether a true *Jeune Ecole* navy would have been less obnoxious to the English than the building of the High Seas Fleet proved to be is, of course, an open question. At least the British in 1935, as part of a policy of appeasement, were willing to sign an international agreement accepting the former type of fleet.⁸

The final method of putting pressure on England by-passes the need for sea power completely, through development and control of the strategic land areas. Mahan himself saw that the most significant factor in his America had been the rise of a self-sufficient industrial empire. But to him this process was only a beginning and he looked to the day when the America of big business would export population instead of importing it. His colonial ideas may seem to have been an anachronism in the years when American business men were developing our characteristic methods of continental exploitation. It is equally ironical that the German founder of *Geopolitik*, Friedrich Ratzel, saw the sea as the prime source of national greatness, while the British geographer Mackinder was pointing out the importance of the nineteenth century's developments in land transportation. But before 1914 even the Russians continued their painful push to the sea, to two disastrous wars and the total collapse of the old monarchy. By 1914 Mahan was as popular on the continent of Europe as in England, America, and Japan. The German navy's enthusiastic acceptance of his ideas was all that was needed; for the Italian, Russian, and French fleets were by this time actual or potential allies of England.

In France the *Jeune Ecole* had declined in influence until it was a mere military sect, repeating its dogmas with little effect on French naval policy. Neglect of the most elementary military principles had proved their undoing. In the ridicule which now greeted their tactical proposals, many people had already forgotten that Aube and his followers had been the first people to analyze many of the salient features of modern naval war. The *Jeune Ecole* had become involved in politics with the usual disastrous results. The Radical minister Camille Pelletan had wrecked both the fleet and the *Jeune Ecole* by trying to purge the navy of many supporters of the opposing doctrine. The defeat of France's ally in the Russo-Japanese war was widely interpreted as proving the correctness of Mahan's ideas. Few writers, except Mahan himself, took the trouble to examine the unorthodox elements in Japanese strategy. The mine and torpedo did not, of course, come up to the exaggerated hopes of the faithful though they established themselves as weapons of considerable importance. Russian attacks on Japanese commerce had been, on the whole, unsuccessful; the Russian fleet's passive belief in the importance of the fleet-in-being was as disastrous as the same belief was later to prove in Germany. It

⁸ One of the bitterest *Jeune Ecole* critics of Tirpitz' policies is Captain Lothar Persius. Typical of his work is *Warum die Flotte versagte* (Leipzig, 1925).

was also as great a violation of Mahan's own principle of an active offensive-defensive for a temporarily inferior force.⁹

This decline in the vitality of the *Jeune Ecole* was largely responsible for a general failure to foresee the strategic possibilities and the portentous future of the submarine, the weapon which was the hope of Britain's enemies from Fulton to Dupuy de Lome. The competition which eventually produced the first successful French submarine had been started by Aube himself. But when this key weapon actually appeared, it caused very little speculation concerning naval strategy. Even the French regarded it as a sort of diving torpedo boat for coast defense. The *Jeune Ecole* had been completely discredited by the violence of their previous claims. (Any student of Douhet will notice a similar parallel. With his perfect fighter bomber almost in sight, his theories have been so discredited by the antics of his journalistic followers, that his bombers have had a hard time getting assigned to the strategic tasks he outlined for them.)

The most original naval thinkers of the period immediately before the war were the Englishmen, Fred T. Jane and Julian Corbett.¹⁰ Like certain other English writers,¹¹ they took the *Jeune Ecole's* contentions seriously. Both Jane and Corbett stressed the importance of the torpedo boat and, later, the destroyer in limiting the action of a superior fleet and both men agreed with Aube that, because of these newer types of ship, close blockade was probably impossible. Corbett's careful studies of the military and diplomatic sides of the great wars of the sailing period gave a much fuller picture than those of Mahan and there was a general revival of interest in combined military and naval operations. Corbett felt that the indirect protection of commerce could best be effected by capturing the enemy's bases; unless this was done—and in this he agreed with Aube—the protection of British commerce would be difficult indeed. Germany, fortunately, could be blockaded indirectly, out of the range of German torpedo operations. The navy, which publicly proclaimed its frontiers to be the coasts of the enemy, began and won the war in stations as far away from enemy torpedo strength as possible. Its respect for the torpedo was, in fact, so great that it hampered tactical action. The Germans, who should have studied the *Jeune Ecole's* doctrines most carefully, contemptuously rejected them as a sign of weakness, and naively assumed that the superior force would appear where the inferior navy preferred to have them. The realistic and scientific German commanders were an odd contrast indeed to the conservative brass hats of the British admiralty.

British naval theory since the war of 1914-1918 has been primarily concerned with tactical matters—the Grand Fleet's fear of torpedo attack at Jutland, and the high command's failure to deal promptly with the submarine menace. American theorists have followed the British pattern, though our criticisms of British naval leadership naturally have been much more severe.

⁹ René Daveluy, *La lutte pour l'empire de la mer* (Paris, 1906).

¹⁰ Jane's most important work was *Heresies of Sea Power* (London, 1906). Corbett's revision of Mahan is *Some Principles of Maritime Strategy* (London, 1911).

¹¹ Among them the brilliant brother of Sir John Colomb, Admiral P. H. Colomb.

Like the British, we have accepted both Mahan and Corbett. Our coasts-of-the-enemy theory is now tempered with a sound respect for both the mine and the torpedo, as well as, more recently, land-based aircraft. The most involved British strategical discussions have been largely historical in nature.¹²

Like the French, the British before 1939 seemed reluctant to consider the tremendous new dangers facing the empire. Their intellectual preparation for meeting the air danger was, on the whole, inferior to that with which they met the torpedo in 1914. No European naval strategist has added much to the discussion of air and sea power; this whole development has been largely focused on the special problems of the Pacific. The Germans, as could have been expected, have carefully explored the causes of the High Seas Fleet's tragic failure. Too late, their discussions have repeated the French pattern of the 1880's. Too late, many Germans, echoing the war ministry's criticism of the period just before 1914, have attacked the kaiser's whole naval philosophy. *Mein Kampf's* doctrines of an empire to be won in the east on land show a belated recognition of some of the basic fallacies of the imperial navy. The unsuccessful attempt of the west to suppress the Russian Revolution immediately after the last war, and the vast development of Soviet power since that time, have proved, at least to many geopoliticians, that sea power is again on the wane and land power in the ascendancy. Tirpitz' attempt to proportion the navy to the state's foreign trade is now seen to be completely absurd. No one would dream of computing the size of the military air force in terms of commercial air traffic.

Some Germans have belatedly adopted the ideas of the *Jeune Ecole* but they have not added much to the *Jeune Ecole's* theory. Perhaps the most brilliant suggestion was Admiral Wegener's spring to the north through Norway,¹³ but even this goes back to the days of Tromp and Ruyter, who tried to sneak Dutch convoys around by way of Bergen. Some German writers favored large scale surface raiding in connection with submarine attacks but the actual raids of the German pocket battleships and heavy cruisers have accomplished very little. Only in convoy actions off the Norwegian coast have the Germans used such forces successfully against surface shipping. We naturally know little of German plans for a land invasion of England but the speed and success of their drives in Norway and Crete show that they might well have considered something similar for England. From the outbreak of the war, the German command has certainly avoided the kaiser's indecision; the story of their actions so far clearly sustains Mahan's contention that even an inferior fleet can cause great damage by an active offensive-defensive.

On the whole, however, the most original continental works on naval theory in the postwar period were produced in France and Italy rather than in Germany. Both powers had been tremendously impressed by the naval warfare in the English Channel and the Adriatic, and the damage which could be inflicted

¹² Even the works of the able Sir Herbert Richmond have approached most strategical problems from this standpoint.

¹³ *Die Seestrategie des Weltkrieges* (Berlin, 1929).

by the skillful use of even an inferior navy's light forces. The Mediterranean was more suited to the lightning clashes of special task forces than to the methodical maneuvers of entire fleets. In the Mediterranean, as in the contested areas of the South Pacific, both France and Italy expected to be able to use the sea for essential military and commercial convoys; neither expected to win the complete command of the entire area. For this infighting, both powers developed great numbers of shore based aircraft, heavily gunned cruisers, and heavy battleships. The carrier and the big flying boat were both unnecessary and the capital ship for such conditions needed to be as nearly unsinkable as possible. The Italian fleet of the 1880's was the direct ancestor of that of the 1930's; its aim was still to interfere with a superior sea power's use of the Mediterranean. As late as the spring of 1943 the Italian efforts at more pretentious tasks had failed; but their fleet had been a constant threat to British military and commercial convoys in the Mediterranean. With the help of shore based aircraft, it had protected the vulnerable Italian peninsula against serious landing operations. In the light of Italy's hopeless strategic situation, geographically, this was a considerable achievement. Mussolini's fleet had failed to win the command of the Mediterranean but it had constantly hampered British movements in that area. Sixty years ago, Italian strategists would hardly have dreamed of anything more.¹⁴

Certainly the most interesting of modern continental naval strategists is the French Admiral Raoul Castex, whose five volumes on naval strategy¹⁵ are the climax of a long literary career. Like his predecessors Daveluy and Darrieus, Castex represents perhaps the best synthesis of Mahan and the *Jeune Ecole*. In his definition of sea power and the military principles on which it must rest, Castex avoids the basic heresies of the *Jeune Ecole*. He is well aware of the importance of the command of the sea and of the need for an organized force to obtain it if possible. Wars are not to be won easily or cheaply but only by fighting to destroy the organized force of the enemy. In the fundamentals of military science, Castex agrees almost completely with Mahan. In his analysis of the conditions of modern naval strategy, however, he agrees rather with the *Jeune Ecole*. To Castex, as to Aube and Douhet, strategy varies with the material conditions of warfare. To him, as to Aube, England's position seems to be gradually deteriorating, and sea power will play a lesser role in the future than it did in the sailing ship era. Like other French and Italian theorists, Castex stresses the weakening of offensive sea power in both time and space: the end of continuous blockade has made it less effective in time; submarine and air attack have limited its action in space by denying access to certain coastal waters. Sea power today, as Jane contended thirty years ago, is increasingly dependent on the security of land bases.

Castex' first volumes were concerned with the hopelessness of trying to

¹⁴ The best known modern Italian works are Romeo Bernotti, *La guerra marittima, studio critico sull'impiego dei mezzi nella guerra mondiale* (Florence, 1923); G. Fioravanzo, *La guerra sul mare e la guerra integrale* (2 vols., Turin, 1930-1931); and Oscar di Giamberardino, *L'arte della guerra in mare* (2 vols., Rome, 1937).

¹⁵ *Théories stratégiques* (2nd ed., 5 vols., Paris, 1937).

defend Indo-China against Japan and he took the lead several years ago in contending that not only that colony, but Syria and perhaps Madagascar, should be abandoned in the face of a serious attack. This inability of the great oceanic powers to defend their outlying possessions is, again, a new limitation on sea power. At the Washington Conference, Castex created a sensation by a memorandum approving the German submarine campaign and he and other French strategists continue to consider it the most dangerous possible threat to England. Though most French naval men were not as outspoken as Castex on this subject, the *Jeune Ecole's* theories of the *guerre de course* still have strong support in the French navy. The building of the giant submarine cruiser *Surcouf* was a clear indication of this continuing trend. In general, the Italians are less enthusiastic about the possibilities of U-boat warfare than the French or Germans. For this, as for almost every other type of naval warfare, their strategic position is difficult, if not hopeless. Finally, Castex had been as greatly impressed as the Germans by the fact that land power is escaping the pressure of sea power almost entirely in areas like Russia and China. One volume of his strategic compilation is devoted completely to studying duels of land and sea power; to him, the parallels between the age of Stalin and the age of Genghis Khan are obvious. This may have been partly a reflection of France's traditional hopes in the Russian alliance, for at least one French admiral, before the days of Darlan, exhibited a bust of Stalin as the future savior of France. He may not have been a poor prophet!

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7 NAVAL CAPABILITIES

In order to comprehend the interrelationships between navies and the making and execution of foreign policy, it is necessary to understand a wide range of variables. These have been grouped under three headings. In this chapter the focus is *naval capabilities*, that is the technical, physical, doctrinal and human variables related to the potential or actual operational performance of the units of naval power. In the following chapter the focus is on the *domestic sources* of policy, that is the internal variables which affect the general size, effort and character of a country's military policy in general and naval effort in particular. Finally, in Chapter Nine, the subject is the *international context*, that is the variables in the external arena which affect the roles and usability of warships in the support of foreign policy.

Appreciations of the potential or actual performance of naval units, whether they be implicit or explicit, underlie much of the debate about naval policy. Indeed many commentators regard capabilities as the only reliable key to the strategist's dilemma. It is frequently asserted that a nation's *intentions* 'can change overnight with changing circumstances': it is therefore argued that it is more prudent to base one's own policies on the 'capabilities given to countries to threaten to pursue or pursue courses of action'.¹ But what, precisely, are naval *capabilities*? What is involved in assessing them? Reference books such as *Jane's Fighting Ships* and a number of others² provide full national inventories of ships and weapons, but is that enough? What do such inventories reveal about the naval 'balance', or imbalance? What do they reveal about the missions for which ships have presumably been built? Clearly, understanding capabilities must go much deeper than looking at inventories, however well researched and conceived. What starts as a relatively (but not very) straightforward numbers game, develops into the problem of shuffling various human, material and geographical factors in dynamic situations. By the end it merges into the broadest and most elusive questions of national policy.

The numbers game

Counting chunks of hardware is the first task. Although there is a great

deal of basic quantitative information at hand, the literature is surprisingly unhelpful in assisting its non-specialised readers to understand hardware in a dynamic rather than a static sense. There are plenty of sources to provide more or less accurate raw data about the numbers, types and armament of ships; this is useful, but it does not go far enough. How is the non-specialist to begin to assess it all? Raw numbers themselves are not much of a guide. This comment has been made by many naval spokesmen in a variety of countries.³ What, for example, is a reader to make of an assertion that the Soviet squadron in the Mediterranean can 'outgun' its NATO counterpart? What should he know about in order to make a reasonable appreciation of such an assertion? Certainly a simple list of numbers of ships and types of weapons is not enough. We have all seen too many Westerns to know that there is much more to a shoot-out than the number and type of the opponents' guns.

Those wanting enlightenment on contemporary comparative naval forces face a most difficult problem, and one which is probably getting more rather than less complicated.⁴ But even readers of naval history will often find themselves disappointed. Although the problem of comparative capabilities is always present, it is usually dismissed rather summarily, either because it is not thought very important, because 'laymen' are not likely to understand it or find it interesting, or because skimming over it is the lazy way out. None of these comments imply that the writers guilty of over-simplification do not have precise knowledge; rather it is an expression of surprise that they choose not to deploy it, especially as so much usually hinges on the various aspects of the numbers game. Marder's work is an exception, with his thorough comparisons of men and material on the eve of great events.⁵ In contrast, Roskill's comparison of the British and German navies at the outbreak of World War One is abrupt to the point of meaninglessness. He was merely satisfied to say that one of the 'solid advantages' of the Royal Navy was its 'superior numerical strength', though he added that this was to a 'considerable extent offset' by its world-wide responsibility for commerce protection.⁶ But how much is a 'considerable extent'? This is the crux of the question — or might have been. Furthermore, in the example quoted, the writer had earlier discussed the effects of tactics, technology and training on Britain's readiness for war. This is useful analytical material, but without any comparison with the enemy, its usefulness is restricted. Similarly, Roskill's one-volume history of the Second World War provides a minimum of scene-setting.⁷ Elsewhere, however, Roskill's work is more helpful in this respect. His first

volume of the Official History of the Second World War provides a comprehensive picture of the naval situation on the eve of war.⁸ In contrast, the introduction to Morison's 'semi-official' histories of US naval operations in World War Two slip over the question of comparative capabilities. This is frustrating for any reader who wants to be fully in the picture. The introductory chapter on the US Navy between the wars has tables with the tonnage of completed ships down to the last thousand ton, but there is no detailed expert analysis of these figures, except the comment:

Since we had to fight in the Atlantic as well as in the Pacific, and because of our great inferiority in overseas bases, the Japanese Navy was then substantially superior to ours for operations in the central and Western Pacific Oceans.⁹

Again, what is 'substantially superior'? This is what we want to know. The concerned reader wants to feel the pressures felt by the political leaders and naval commanders.

At least these distinguished sources are not misleading: they are only incomplete. Some commentators today present numbers which, by accident or design, are very misleading to those who have had little or no contact with naval analysis. Tables are sometimes shown in the press purporting to compare Soviet and Western naval 'strengths'. They will typically consist of simple lists of numbers of submarines. Rarely, if ever, is there anything about deployment patterns, type and function, operational availability and relative capabilities in the fullest sense (that is, against the units which they would have to face in war). The reader is presumably expected simply to draw the conclusion that the extent of the submarine 'threat' is in 'direct proportion to the excess of Soviet submarines over NATO submarines'.¹⁰ Such fallacious arguments continue to be put forward.

Appreciating comparative naval capabilities is a difficult activity. Unfortunately, the literature gives relatively little guidance to non-specialists on how to turn cold numbers into hot reality.

The order-of-battle

The initial object of the numbers game is to draw up an order-of-battle (OOB).¹¹ On the basis of the raw numbers in the analyst's possession, he then works out an OOB in the light of such factors as deployment patterns, operational availability, types, missions, time on station and so on. While warships are the primary interest, the

potential military role of some merchant ships should not be ignored. For most observers, acceptably accurate numbers are available from a number of sources, such as *Jane's Fighting Ships* or even the more basic *IISS Military Balance*. What is less easily available, though, is any detailed discussion of matters such as transit times, and other factors affecting deployment cycles (e.g. submarine habitability). Few analysts present their readers with a detailed OOB, and some indication of how it was arrived at. McGwire was probably the only analyst in the early part of the Soviet naval debate who presented his readers with anything comprehensive and coherent in this respect. Interestingly, his original critique of establishment interpretations of Soviet naval policy seems to have resulted in the latter improving somewhat the level of its presentation. In addition, one has noted a development in newspaper articles, from the generalisations and traditional clichés of 1967-8 to the rather more professional approach of recent years.

Critical maritime operations

Having drawn up an OOB it is then necessary to examine the critical maritime operations. This is a very difficult task even for the most directly involved professionals. It involves assessments of the weapons balance, performance characteristics, tactics, likely effectiveness and so on. Because of the sensitivity of intelligence about such matters it will not be possible for the outsider to go very far: classified information and expert interpretation dominate this area of the subject. However, if the outsider is to have any feel for naval matters it is both necessary (and possible) to acquire some basic principles concerning the critical maritime operations. The most up-to-date intelligence will always be unobtainable, but that is rarely a disqualification for sensible comment.

While tactics are obviously a sensitive subject, one knows enough in theory and from historical examples to be aware of the decisive impact which they can have on naval engagements between opponents whose size and performance characteristics may differ widely. Knowledge of tactics will help observers to assess with at least a little perspective some of the unqualified propositions made about such matters as the tracking of submarines and the vulnerability of ships to missiles. A comprehensive picture of critical maritime operations at sea should be part of the knowledge of the 'interested public' in this field; it is not easy to come by, though there are a handful of basic introductions.¹² Only a close reading of the professional literature over a long period can fill in details and give an impression of

developing trends.

A weapons inventory is static. Furthermore, an understanding of the critical maritime operations will underline the point that ship-to-ship comparisons are less valid.¹³ As time has passed, a growing variety of instruments, based under and above the surface of the sea, as well as on it, and also projected from the land, have had to be taken into consideration in the preparation and execution of a war at sea, whatever its level.

While assembling knowledge on these matters may not provide outsiders with answers to the great naval questions of the day, it should help them to speculate more fruitfully and to confront insiders with more perceptive questions. Knowledge of the principles of critical maritime operations, however, is only a starting point in the task of making dynamic appreciations of a naval balance. Many qualitative human factors have to be taken into consideration, as well as many specific contextual factors. Matters such as which side has the initiative and details of local prepositioning might be critical in war. Furthermore, relative tactical abilities have to be weighed into the account, although this is obviously a highly classified area. How much of the curtain can be safely lifted is a difficult question, but what are outsiders to make of a statement concerning 'outgunning' without reference to tactics and the relevant contextual factors? When navalists assert that their ships can be 'outgunned', the import of their message is that they need better if not bigger, and certainly more ships. But 'outgunning', as measured in crude static terms, can be overcome by better training, better vigilance, and better tactics.

It is understandable why discussions about naval balances focus on the readily quantifiable aspects. Furthermore, the prudent assumption is always that Neptune is on the side of the big battleships. But the many qualitative factors in a naval balance cannot be left out of account, although the complexity of these issues is such that it has become increasingly difficult to settle which are the 'big battalions' in modern naval warfare. For one thing, so many of the determinants of *performance* are hidden. What can outsiders (or insiders) know about relative capabilities in sonar, electronics and the other hidden features which make modern warships what they are? All these difficulties have been reflected in the prolonged debate about the 'balance' or 'imbalance' (which way?) between the Sixth Fleet and the Soviet *eskadra* in the Mediterranean, or the many viewpoints concerning the 'balance' or 'imbalance' (which way?) between submarine and anti-submarine systems.

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Two further comments are necessary when considering relative effectiveness in the critical maritime operations. Firstly, the maritime confrontation between the chief naval powers has changed its character. Straight comparisons of the main battle fleets for decisive wartime engagements are no longer as politically meaningful as in previous eras, since major war would now represent a catastrophic breakdown of all political effort. In assessments of the naval balance, 'the showdown' is not as meaningful as hitherto, although it remains the chief determinant in the design of major warships. The answer to the question 'capability for what?' is not as clear as formerly, when phrases such as 'another Trafalgar' or 'the destruction of enemy commerce' were perfectly adequate. Today, warships are more than ever concerned with deterring the ultimate showdown and with manipulation short of war. But if the showdown is to be avoided at almost all costs, then the traditional yardstick must steadily lose its meaning. But by what other standard is 'the balance' to be measured? Secondly, the problem of assessing a naval balance is not simplified if attention is focused on specific scenarios. Many unpredictable circumstances and factors can arise in the course of an engagement – weather or a failure of nerve – as well as 'real time learning', that is the relative adaptability of the combatants to the new and invariably surprising realities of conflict. As with all scenarios, there is a danger that an advocate of a certain course is apt to postulate the scenario which most aptly supports his position, 'disregarding the fact that his scenario will constitute but one of several hundred combinations of opposing forces, tactics and experimental conditions'.¹⁴ Despite all the problems, appreciations of relative capabilities for local engagements or localised campaigns must be made: this leads on to one of the chief contextual factors, namely geographical considerations in naval operations.

Geographical factors

Theodore Ropp has described geography as 'the bones of strategy'.¹⁵ Naval strategy, and the capabilities mobilised in support of it, are incomprehensible without close attention to maps and other revealers of geographical factors. The numbers game cannot be properly played without its appropriate map board: 'what is deployed where?' is a first important question.

A country's maritime policy will be affected by the nature of its geographical characteristics in several ways. Geography will affect such matters as whether its fleets have to be separated, whether and where it has good harbours, its location relative to important narrow

waters, its location in relation to its potential allies and enemies, its distance from its responsibilities and the configuration of the land and the seas in between. The geography under the surface of the sea is : essential knowledge for submariners and their opponents: in this respect the growing importance of oceanography has been reflected in the attention invested in it by the world's major maritime countries.

Distance is a fundamental consideration in all strategy. It has political implications, and it also has operational importance in terms of transit times, time-on-station, and logistic constraints. These factors are often skimmed over. The Soviet threat to the Cape route, for example, is often asserted without any reference to the resupply problems which Soviet units would face in any sustained campaign against Western shipping in that distant area. Obviously, these constraints would be less significant if the campaign were one of individual submarine terrorism against occasional targets; a more systematic campaign would certainly involve the need for the replenishment of ammunition, change of crew and so on. Inverting a map, so that Murmansk is at the bottom and Cape Town at the top, gives one a better impression of how the problem of the interdiction of the Cape Route might appear from the perspective of Moscow. It shows the physical constraints, and it also suggests that if Soviet leaders believed that it was in their interests to disrupt the flow of Western oil, then the most rational action would neither be in the vicinity of the Cape nor involve the sinking of supertankers. It would be a disruption at source. As well as imposing constraints on objectives, operating at a distance also increases the significance of the number of warships. This was evident in the British support of the Beira patrol,¹⁶ and in the Soviet proposal in the SALT II negotiations that the longer transit-times for their SSBNs (when compared with their forward-based US equivalents) justified a claim for twice the number, in order to keep the same number on station. Distance also affects strategy and tactics. While quicker communications have effectively reduced the immensity of the sea, its sheer size is still a factor of considerable significance. In particular, the alarmists who warn us of the imminence of the detection of nuclear submarines seem to pay no attention to the freedom of SSBNs offered by a combination of clever tactics and the watery character of two-thirds of the earth's surface, more than half of which is deeper than 10,000 feet.

The significance of geographical factors can be vividly illustrated by an examination of British naval history. The relative advantages of Britain in its wars against Holland, France and Germany are well

known: as Fisher put it, 'Providence has arranged England as a sort of huge breakwater.'¹⁷ Britain's location also bestowed it with advantages for the air war over the sea in World War Two.¹⁸ But geography bestows disadvantages as well as advantages, as Japan found in World War Two.¹⁹ These disadvantages remain today. Japan's future as an industrial power depends upon maritime transport, and a significant part of this (nearly 90 per cent of its oil is from the Gulf) passes through the Indonesian archipelago. Potentially, therefore, Indonesia has a hand on Japan's lifeline.²⁰ The impact of geographical factors on the Soviet Navy, historically and today, is well known, although the daily headache which this causes Soviet naval planners is perhaps not sufficiently felt by Western commentators. Geography means that Soviet SSBN operations have to strain if they seek to maintain a parity in readiness with their forward-based US counterparts. More significantly, naval geography means that the country needs four widely separated fleets, and contact between them is hindered by the vastness of the distances and problems of climate. The exits of three of the Soviet fleet areas are controlled by potentially hostile states, while even the Northern Fleet access zone is vulnerable to interdiction, certainly for surface units. The lack of 'waterfront real estate' is disadvantageous as far as Soviet ASW operations are concerned.

Geographical factors are both obvious and crucial to the naval practitioner: they affect his basic calculations of time, space and available force. For the archetypal armchair strategist, be he academic (in the pejorative sense) or politician, these constraining facts of life are too easily relegated to the sidelines. It is well to remember the World War One jingle which went: 'Big fingers, little maps, means lots of deaths for the chaps.'

Logistics

The author of the just-quoted jingle knew that geographical factors, and specifically distance, greatly affected logistical possibilities. Non-practitioners tend not to notice this less glamorous aspect of military operations, though it is a vital underpinner of a navy's strategy. In considering any navy, but especially one with a 'blue water' strategy, the problem of logistics — primarily maintenance and replenishment — is of major importance. Whether it is a navy in forward deployment in peacetime, or fighting in a war, the 'fleet train' is a critical constraining and/or permissive factor. US naval operations in the Pacific War of 1944 and 1945 are the classic wartime illustration of the importance of an effective fleet train, while the maintenance of the Sixth Fleet in the

Mediterranean has been its most prominent modern peacetime accomplishment.

In any consideration of capabilities, it is necessary to examine the possible constraints imposed on operations by a country's capacity for logistic support. Two alternative answers exist: forward bases (or facilities) or afloat support. An individual country will weigh the relative costs, practicability and reliability of each. Increasingly, modern developments in afloat support have improved the sea-keeping qualities of naval forces. The political difficulties associated with bases have grown. Together these factors have caused a shift in favour of afloat support, though this is a technique which does not come without much time and cost, and this has undoubtedly been a factor in the Soviet hesitancy in this regard.²¹ The requirements for a fully efficient fleet train are demanding. It requires fast general purpose replenishment ships and tankers, able to keep up with the operating warships, and it requires a supporting force of victualling ships, stores ships, ammunition ships and tankers to keep the faster ships topped up. It requires repair ships for surface ships, for helicopters and possibly for aircraft, and maintenance ships for submarines, minesweepers and frigates and other small ships. A mobile floating dock is essential for the repair of hull damage.²² And for all these requirements, the greater the operating distance, the greater the demand on numbers and operational performance.

In considering logistics, the naval-related use which a country can make of its merchant ships should be considered.²³ Certainly it is essential as far as wartime situations are concerned; the inestimable value of a merchant fleet has been written about very effectively by Roskill.²⁴ Logistic possibilities are also affected by air staging and transit rights.

For most people logistics is not a compulsive subject. Operationally, however, it is of fundamental account. Few commentators give it proper attention. The effort required to maintain the unsung Beira Patrol has not been given the recognition which its practitioners know it deserved.²⁵ Equally, the debate about the Soviet threat to Western shipping in the Indian Ocean is often carried on with little reference to the logistical problems which units of the Soviet Navy would face operating in a hostile environment, remote from their bases, and with inadequate afloat support. Logistics remain as important (and unfashionable) a factor today as they did when a writer made the following still-relevant comment about World War Two:

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Everybody likes to talk about and analyze *strategy*. Some 'mystic' quality about strategy and strategic planning and strategic decisions seem to arouse the spirits of all to a sense of intellectual contest. But World War II turned out to be less a game of strategy than of logistics. There were certain choices, but more often than not the choice hinged on the logistical factors and implications rather than upon some abstract gamesmanship.²⁶

Procurement

Just as foreign policy outputs are affected by the nature of the processes of their creation, so naval capabilities need to be understood in relation to the processes of their procurement. It is a very sensitive area of national policy, and it is difficult to know whether outsiders can go very far. However, its importance remains: the 'research and development balance' is one of the factors which affect perceptions of the overall naval balance, and an understanding of 'procurement philosophies' is a significant input in the forecasting of naval programmes.

Procurement is an area of military policy where information is both elusive and difficult. Its study requires the co-operation of the detective-minded researcher and somebody with relevant technical expertise. To build up a picture of the naval procurement policies of a particular country, we need to know about its shipbuilding industry, its yards, its technical sophistication, its characteristic problems and ways of dealing with them, its general procurement philosophy, patterns of shipbuilding programmes, practices and procedures, and lead-times. The current state of the art needs to be assessed, and the particular country's hardware measured against it.

Some understanding of the procurement process is important in various ways. Knowledge of lead-times is important in analysing intentions; knowledge of lead-times can contribute to a more precise dating of when particular programmes were decided upon. This knowledge will therefore minimise untutored discussion and gross errors of linkage between particular decisions and events. It would appear from a close scrutiny of lead-times that the experience of the Cuban missile crisis was not as decisive in the evolution of Soviet naval policy as many commentators have stressed. Because of lead-times it can be argued that the hardware decisions to support Soviet naval expansion pre-dated Cuba. If this is true, the most that can be said about the experience of October 1962 is that it *confirmed* a growing appreciation of naval power.

An appreciation of procurement philosophies and naval shipbuilding industries assists forecasting and underlines the misconception of crude ship-to-ship comparisons. Comparable types of ships will perform differently because of possibly very different design priorities. As Admiral Holloway, the US Chief of Naval Operations simply put it: 'We don't build ships the same way the Soviets do, because we intend them for different purposes.'²⁷

The elusiveness of the subject of naval procurement is attested to by the scarcity of works on the subject. Indeed for some reason the scholarly studies in the procurement field have invariably concentrated on aircraft. It may be that naval procurement has been relatively more successful, and has therefore not attracted the same attention. Its secrecy and complexity is another deterrent to study. Procurement is a political and technical snakes-and-ladders game which few within any military service would claim to fully understand. It is something they suffer rather than control. It involves the interplay between scientists, design teams, industries, armed forces, economic departments and politicians. The process allows an opportunity for a number of institutional interests to be followed. The 'game' therefore involves plenty of hard bargaining on all sides. The regular pressures are the external threat, economic constraints and the urge to modernise.

Procurement is an important building-brick which needs to be incorporated within the edifice of naval policy. It is another field in which outsiders are dependent upon a few people with a high degree of specialised knowledge and expertise. Despite the importance of the 'hardware approach', there have been few step-by-step analyses. Brodie's book starts well in his discussion of the 'tools' of naval power: but his content is now outdated and in any case did not go far enough. Unlike Brodie, Martin has very little of the fighting-ships-at-sea approach. He does offer insights into some of the problems of procurement, however, discussing such problems as balancing sophistication against cost. McGwire's writings have perhaps been most useful of all in lifting up part of the curtain on the hardware approach, dealing with matters such as time and space, procurement, the drawing up of an OOB, the construction of a model of the shipbuilding industry, and the measuring of capabilities against critical maritime operations.²⁸

Doctrine

Military doctrine incorporates the bundle of ideas by which capabilities are translated into military action relevant to the fulfilment of goals. It includes ideas about the nature of future war, and how the forces

plan to fight it. Doctrine reveals something of a country's conception of the 'threat' it faces, and how it prepares to deal with it. It affects and is affected by the procurement process: each is a necessary, but not sufficient factor for the understanding of the other. Because of what doctrine might reveal about perceptions and intentions, and because it guides hardware into action, it is a crucial consideration for the naval analyst. However, an almost exclusive concentration on 'software' gives an incomplete explanation of a country's naval policy.

As a result of publicised exercises, and writings in military journals, there is often relatively more about doctrine than other aspects of a country's military posture. Too much should not be read into it. Many commentators are misled about the threat presented by a particular country because of too narrow a reading of doctrine, without taking a broader view of the country's whole posture and interests in international politics, or the internal and external reasons why particular statements might have been made. After attempting to unravel the possible tactical nature of military declarations, it is also necessary to give attention to the 'levels-of-analysis' problem and its possible impact on threat assessment.²⁹ An analysis of doctrine is at best only a partial indicator of a country's 'threat' in a strategic sense. As is suggested in the old maxim 'attack is the best form of defence', a country's aggressiveness in the event of war is not necessarily incompatible with an overall strategy which is war-avoiding.

Together, a picture of a country's doctrine and hardware will help to reveal how well its planners have married their technological capacities with their strategic environment. It will give a picture of how they plan to operate their forces in war or short of war. Their understanding of these factors depends, in turn, on the quality and quantity of their information.

It is one of the simplest but most important maxims of the social sciences that behaviour is based not on objective reality, but on what participants believe to be true. The importance of congruity between image and reality in military affairs, because of the violent potential, is more urgent than in many aspects of public policy. Short of access to a particular navy's top-secret files, however, it is impossible to know with great accuracy how it perceives its potential enemies. Nevertheless, this is a subject for serious speculation. In particular, attempting to understand an adversary's perceptions is a first step towards understanding his behaviour. Seeing the world from what, in a naval context, might be called 'the other side of the horizon' is a difficult task; it

involves problems of information, as well as the fogs of culture-bound thinking. In their efforts to reveal the nature of Soviet naval strategy from the *Soviet* viewpoint, the pioneering work of Herrick and McGwire was outstanding in this respect. It was also instrumental in opening up the great Soviet naval debate to serious discussion: other participants in the debate owe them a great deal, whether or not they agree with their conclusions, as many indeed do not.³⁰

Capabilities and mission flexibility

On the basis of a careful evaluation of a navy's OOB and its doctrine, it should be possible to speculate with some profit about its likely missions in both peace and war, and its level of capability for discharging them. Naval missions must be considered in a naval balance, as well as ships, because capabilities can only be fully comprehended in terms of *what they are for*. It is meaningless to compare the Soviet capability for intervention from the sea against the same US capability, because they are not conceived as being against each other: rather, they need to be considered against relevant defensive forces. Equally, in analysing historical engagements, one cannot properly assess 'success' and 'failure' apart from the mission structure of the respective fleets. Many of the misjudgements about the Battle of Jutland have arisen out of the failure to bear in mind the different strategic aims of the rival fleets.³¹

Amongst the questions to be asked about a particular navy are: What are its missions? What is their priority? What capability is needed to discharge them satisfactorily? How much can be afforded? How critical is the shortfall? What degree of interchangeability is there between missions? Such problems are teasing enough for those at the core of naval intelligence. The answers are the more elusive in practice because 'flexibility' is often the result of improvisation: 'How do I know what I can do until I see what my orders are?' might be a naval commander's comment.

There is often a considerable disagreement about questions of mission flexibility. The character of the disagreement often reflects the backgrounds of the proponents. Those with professional naval backgrounds tend to be more cautious. Clearly, there is a wide margin for error when estimating whether a particular state has the requisite equipment to discharge a particular mission. There are many complications. One is never sure about mission priority. Different navies have different ways of approaching similar missions. Those navies which are relatively powerful within their own system will tend to overinsure.

It was traditionally maintained by British naval authorities that exigencies of deployment made it necessary to assess the number of ships required not only against the number and quality of opposing ships but also against the 'absolute' requirements of particular tasks, such as patrolling and maintaining a presence.³²

The problem of mission flexibility has been highlighted in recent years by the debate about the capabilities and mission structure of the Soviet Navy. There are those who have argued that the priority missions of the Soviet Navy have been and are structured by the perceived maritime threat from the West.³³ The general war tasks which have developed from this perceived threat have basically established the priorities of the Soviet Navy's missions, and set limits to their interchangeability. Using Sokolovskii to support his point, McGwire has written:

For the time being, the Soviet Navy lacks any such a deployable surplus of capability over requirements. Its three primary tasks, of countering Polaris and the aircraft carrier, and deploying its own SSBN, are concerned with deterrence and strategic defense, and the Soviet Navy's flexibility of action is severely circumscribed. Naval forces deployed to these roles cannot be diverted to tasks that are likely to increase tension with the West, since it is at times of crisis that the Soviet Union's concern for the security of the homeland becomes most acute.³⁴

The idea of *surplus* is central to McGwire's thesis. He argues that flexibility is really a function of surplus, and that the Soviet Navy, unlike the US Navy, lacks 'surplus'. However, he does not consider that this lack of surplus has prevented or will prevent the Soviet Navy from exploiting the peacetime uses of naval power: but he has argued that it will impose a severe inhibition against any possibility that a Soviet leadership would deliberately use force at sea.³⁵ While contemporary attention is naturally drawn to Soviet and US naval strategy, some of the clearest illustrations of the impact and value of the flexibility which surplus bestows come from British naval history. This was evident in the convergence of British warships in the hunting of the *Bismarck*, when the advantages of numbers were present 'not for the first time but almost the last'.³⁶ One historical illustration conforming with McGwire's thesis was the despatch of British forces to Gibraltar in 1940 to replace the lost French force in the Mediterranean. This division of force was possible without weakening the Home Fleet,

the irreducible minimum of national defence. It was the strength of the Home Fleet which one First Lord described as 'the mainspring from which all offensive operations must proceed'.³⁷ If states are rational and cautious they will not embark on risky behaviour in distant waters if that action might increase the dangers to the homeland, and if the diversion of forces will weaken their ability to limit any ensuing damage.

McGwire's general view about the imperative of navy-to-navy general war tasks has been contested by Martin and Cable (amongst others). His critics have argued that a greater interchangeability of missions is feasible, and that the OOB for general war, and preoccupation with it, will not necessarily inhibit the Soviet Navy from undertaking a more activist policy if the leadership considers that it is in Soviet interests. Cable's position³⁸ is that 'the motives for which warships are built seldom foreshadow the actual nature of their employment, even in war, and are almost irrelevant to their utility in time of peace.' This argument leads in a useful direction. A distinction can be made between the primary and collateral objectives of warships. The basic character of the most powerful warships is determined by their role for major war. Like river dikes, warships must be able to cope with the worst situations, however infrequently they occur. It is pointless to build them strong enough to deal only with normal everyday problems. By being designed to withstand the flood, they should be able to deal with the ordinary tide. In developing this argument about the peacetime utilities of Soviet warships, Cable asked himself the negative question:

Is there a peace-time role of which they (Soviet warships) are technically incapable or from which they are manifestly debarred by the need to maintain instant readiness for nuclear war? If this analysis reveals the existence of useful warships not irretrievably committed in time of peace, it will then be necessary . . . to examine the kind of contingencies in which the use of limited naval force might seem politically feasible to the Soviet Government.

Later, he argued that commitment to strategic defence need not be 'absolute' because, unlike coastal defence, its chances of success are 'too small even if maximum strength is available' to discourage the Soviet Navy from deploying ocean-going warships for other purposes in times of peace. Certainly the commitment to strategic defence *need*

not be absolute, but that phrase does not tell the reader anything about the actual Soviet commitment to it. Against this side-stepping of the issue it is important to point out the importance traditionally attached by the Soviet Union to damage limitation efforts, even if the chances for *absolute* success may have been small. Cable's next point is more telling: 'it does not necessarily follow that the Soviet Government will always regard every peacetime use of warships as automatically entailing the risk of general war.' It would be difficult to disagree with this observation. For such peacetime uses, he reckoned that in 1971 it was already possible to assume that the Soviet Navy could spare 'at least a dozen ocean-going warships'.³⁹ While one might question the number stated (a 'dozen' of what? where? in what circumstances? for what purpose?) his reminders about the flexibility of mission structures is very pertinent.⁴⁰

Most ships are multi-purpose. Above all, the aircraft carrier is the pinnacle of operational flexibility. Its primary mission can change between air defence, strike against surface ships, hunting submarines, to projecting power ashore. It is unique amongst warships in the versatility of its wartime roles, while also being capable of performing all the short-of-war activities, from the most social to the most harassing aspects of coercive diplomacy. Naval flexibility is no longer an Anglo-American prerogative. Admiral Gorshkov has been a notable publicist on behalf of the flexibility of warships, arising out of their many modes of employment *in addition* to their primary wartime tasks.⁴¹ The ageing *Sverdlovs* are good illustrations. Designed originally as traditional cruisers, their present potential purposes are wide. Is their maintenance simply for training? Is it because of the possible political impact of their size and impressive appearance? Is it part of the Russian habit of 'overinsuring' in numerical terms? Is it for ceremonial occasions? Is it inertia? Is it for supporting action in a conflict with China or NATO? Is it that they believe they have been sufficiently modernised to meet general war contingencies? Whatever purpose is presently in the minds of Soviet naval planners, future employment will depend upon the thrust of events. This has often destroyed the hopes of coherent planning. Despite the ostensible rationality of the British battle-cruiser concept, it sometimes happened, to their cost, that they had to be deployed in circumstances for which they were badly designed.⁴² Improvisation is a norm of naval employment: rare has been the warship which has been kept in the manner to which its original designer thought it would be accustomed. Because of their life-span of twenty to thirty years, this is hardly surprising.

Some of the arguments about flexibility in the great Soviet naval debate have been bogus. Between the proponents of the so-called 'defensive' and 'activist' interpretations of Soviet naval strategy there is more common ground than might appear at first sight. There is nothing in Cable's activist argument that 'it does not necessarily follow that the Soviet Government will always regard every peacetime use of warships as automatically entailing the risk of general war' with anything which has been written by McGwire, the most prominent of the misleadingly called 'defensive' school. However, Cable and others would evidently consider such a comment to be a telling contrary point. An examination of McGwire's work shows his recognition of the potential of Soviet warships for the purposes of increasing 'prestige and influence'.⁴³ The difference between the two emphases can be most clearly seen by comparing the writings of McGwire and Weinland, who has made the most solid contribution to the 'activist' school.⁴⁴ The gap between them is quite narrow. There is a consensus regarding the initial impulse behind the building of the modern Soviet Navy and for its pattern of progressively widening deployment. The difference about present trends is one of degree rather than kind, and as far as the problem facing Western navies is concerned, their conclusions would be broadly similar. The McGwire thesis is that the Soviet Navy has invariably lagged far behind in its efforts to meet the threat represented by the US Navy: it is doubtful, even with the improvement in the last few years, whether the Soviet Navy is satisfied with its damage-limiting potential. This primary general war orientation continues to establish the shape of Soviet naval efforts. It imposes constraints upon it: it does not allow a 'disposable surplus' for activities riskier than attempting to increase prestige and influence, activities which require 'the protection of peace'. Weinland's thesis accepts that defence of the homeland against attack from the sea remains the Soviet Navy's primary mission, but he argues that there has been a significant modification of the Navy's mission structure. It now has the additional responsibility for the 'protection of the State interests of the USSR on the seas and oceans'. Whether one is drawn to the activist interpretation pointing to experimentation and the creation of options, or to the determinism of the navy-to-navy confrontation, there is an important area of common agreement. In order to fulfil its foreign policy tasks the Soviet Navy needs maritime stability. Clashing with Western navies, and particularly that of the United States, would take away that freedom and would perceptibly increase the risk of escalation. For these reasons, it is argued by all the serious

commentators, be they of the 'activist' or 'defensive' emphasis, that the Soviet Navy is unlikely to risk using force at and from the sea where it might involve a clash with the United States. To a large extent the difference of emphasis is not about the Soviet Navy as such, but about the likelihood of militancy in Soviet foreign policy. There is little disagreement about the possible range of Soviet naval behaviour: the difference is more over the range of *probable* behaviour, as determined by the makers of Soviet foreign policy.

All these problems involve the juggling of capabilities and intentions. At their base is a perennial and important question: to what extent does 'hardware analysis' reveal the underlying intentions of naval policy? McGwire, who has written most consistently about this, has argued that from the evidence of ship types, operational activity and patterns of deployment, it should be possible to work out a 'reasonably clear outline of the underlying naval policy'.⁴⁵ His approach is followed through to the finer details of naval policy: 'To a varying extent, it is possible to deduce the primary role(s) for which a class of warship was *designed* by reference to its characteristics.'⁴⁶ Furthermore, shipbuilding programmes and operational evidence provides 'a reasonably factual matrix' against which to evaluate Soviet pronouncements.⁴⁷ His conclusion is that hardware analysis

is not a panacea. But because it rests on a firm foundation of physical data, it does provide a relatively concrete form of reference against which to evaluate and interpret other types of evidence.⁴⁸

Hardware analysis of Soviet naval policy has been attempted most comprehensively by McGwire. Hill attempted to put a sharper edge on it by looking at tactical weapons as indicators, though he admits that the picture presented is a complex one.⁴⁹

The hardware analysis approach has been criticised by Cable. He revealed his scepticism early in his book: 'Warships . . . are such flexible instruments of coercion . . . Changes in the order of battle of the world's navies thus offer only partial indications of their prospective employment.'⁵⁰ His view is that what matters is the *existence* of ships, not the role for which they were created, possibly many years before.⁵¹ Again, the debate is a little false. What is a 'partial indication'? Nobody, including McGwire, claims that hardware analysis is a full indicator, only the most reliable one at hand. Nor does McGwire's thesis rule out the possibility that factors other than general

war employment might affect the character and shape of warships. Design inertia or a compromise between different requirements are amongst the additional complicating factors.

The difference of view between Cable and McCWire is partly a matter of degree, but it is also based on a basic difference of opinion about naval strategy, and may in turn be a reflection of different backgrounds. Is the 'flexibility' of naval units a function of their versatile nature, as Cable argues, or of their number (surplus) in relation to their tasks, as McCWire argues? Cable's thesis tends to ignore the extent to which warships are rationally built for extreme cases and the extent to which their primary missions affect their daily routines. McCWire, on the other hand, is in danger of underestimating political pressures for improvisation, the way ships are sometimes matched to tasks in an ill-fitting way, and the scope for 'activism' which is possible in local areas before significant fears arise of general war, an eventuality which all seem agreed is steadily more remote in the perceptions of the leaders of the superpowers.

The debate about capabilities and the flexibility of mission structure will go on. For the contingency planner, concerned to understand the potential threat in terms of what an adversary *can* do, it is an exercise which should be carried out with imagination as well as thoroughness. Surprise, after all, is a constant feature in everybody's principles of war.

The human factor

Whatever comparative technologies and mission structures are on show, the competence of sailors and the skill of their commanders can make all the difference between success and failure. However, assessing the 'human factor' is often the most elusive of all the elements in the balance.

Even the most professional assessments are likely to be vague. Observation and interpretation of training routines, exercises, seamanship, performance under stress, maintenance ability, morale and so on are difficult enough problems for naval intelligence organisations. Historians, with the advantage of hindsight and as much evidence as there is, have not been able to go very far. It is impossible to achieve more than generalisations; and the import of these, in any particular case, is difficult to assess and so weigh in the balance.⁵² Because the human factor is elusive, it is often left out of account: *Jane's* provides no guidance as to the skill with which all those impressive amounts of steel and shell which it portrays may be utilised.

Despite the difficulties, the human factor ('form' in military parlance) is one which continues to be stressed by military practitioners. While this stress on the human factor by senior officers has an obvious morale-boosting element, it is evident that in many situations the 'form' of the crew will make a big difference in the effectiveness of an operation. The importance of the commander himself goes almost without saying.⁵³ The whole movement of the ship depends upon his skill. In some ways, however, his task is easier than that of a commander of infantrymen. Unlike an infantryman, an ordinary sailor, however wobbly his knees, cannot opt out of the move chosen by his commander. But that does not mean that his morale is of no effect. At a moment of crisis in the denouement of the *Bismarck* drama, Admiral Lutjens gave a speech which eroded the spirit of his crew.⁵⁴ Strategically, this was not significant as long as he continued to make rational decisions and his orders were obeyed: tactically, by taking away the will to fight, it could have been decisive. The 'form' of the commander is of great account strategically, as is evident with the allegations that Admirals Jellicoe and Halsey were too cautious, and so missed important opportunities, or that Admiral Pound interfered too much in the running of decisions, so that when he was 'off form' disaster might be the outcome; this was possibly the case with the destruction of Convoy PQ17.

Traditionally, the practitioners of the art of war have stressed the importance of the 'moral' over the 'material'. Although the 'moral' cannot really be quantified (though some have tried), it is usually thought to be something worth weighing in the balance.⁵⁵ The impact of expertise and training is evident in ASW or convoy work, not to mention some of the more flamboyant aspects of naval action.⁵⁶ In modern conditions there are many occasions in which 'form' will show itself, for instance in low-level maritime confrontations.⁵⁷ The importance of form was evident in the discipline and command-and-control arrangements of the US carrier commanders during the June War.⁵⁸ It was not evident in the low readiness of the crew of the Israeli destroyer *Eilat*, sunk by *Styx* missiles from Alexandria in 1967.⁵⁹ But times change: in the Yom Kippur War six years later, not a single Israeli vessel was sunk although 52 missiles were fired from Egyptian and Syrian vessels.⁶⁰

The preference remains for counting hardware rather than speculating about intangibles. Nevertheless, practitioners continue to point to the significance of the human element. In his first press conference as Chief of Naval Operations, Admiral James L. Holloway stressed the

importance of his men and their experience. In comparing US and Soviet naval strengths he said,

Finally, I think probably one of our greatest assets is I feel that our people are better. They are more imaginative, [have] greater resourcefulness, and we have veterans. We have pilots who have flown over 200 missions in combat. We have destroyer skippers who have spent four and five years on the gunline in Vietnam exercising their equipment. We have an awful lot of combat veterans in the United States Navy.⁶¹

Ultimately, it is only those who have seen action who can really know, *who can subjectively feel*, how important it is to have the right men alongside them.

In the past it has often been true that 'form' was basically a matter of personality as well as skill. Ability, strategy and tactics, and panache could overcome material factors. Hawke's boast that 'It is a matter of indifference whether I fight the enemy with an equal number, one ship more, or one less' was characteristic of the swashbuckling age of strategy at sea. In an electronic age it might be argued that narrow technical specialisation is more important than courage and personality. Whether the increased technocratisation of war will undermine the traditional stress on the moral over the material remains to be seen, but the human factor, in one way or another, remains critical. It is different qualities which demand our attention.

Although skill has been most commonly associated with fighting ability in war, we should also today consider the diplomatic skill surrounding the political use of naval force in situations short of war. In some circumstances ensuring that naval signals are properly perceived is partly a diplomat's responsibility.

People are often said to prefer myths to reality. One social historian has said that myths 'give identity, purpose and meaning . . . They shape the attitudes and determine the outlooks of its adherents.'⁶² Studying the mythology surrounding different national officer corps gives some insight into the human element. Self-image affects behaviour. It played some part in the predisposition of British naval officers in favour of the aggressive 'hunting group' or 'offensive patrol', and it played its part in the preference of some British officers for the excitement and glory of the east of Suez role. To British seamen, being a naval officer meant seeing the seven distant seas, not just the contiguous one, as has been the lot of his counterpart in most of the

world's navies. Naval mythology also plays its part in establishing the prestige with which the naval profession is invested in different countries: this in turn affects the quality and quantity of recruits. The mythology is reflected and built up by the way navies are treated in films, literature and drama.

When considering the human element it is well to be reminded of the importance of accident and chance. 'Friction' was the term which Clausewitz gave to the process by which plans fell short of the mark as a result of human frailty or external agencies such as the weather. The role of chance is one of the themes of military history. One estimate put the chances of a hit on *Bismarck's* rudders from *Ark Royal's* *Swordfish* at 1:100,000.⁶³ One does not record it with astonishment: *c'est la guerre*. In naval affairs the unexpected can take many forms, and can result from human or non-human factors: weather can always upset plans, as can enemy intentions. In this respect it is well to remember that 'surprise' is one of the most hallowed of the principles of war. Despite careful appreciations, practitioners have often been overcome by 'behavioural' or 'technical' surprises.⁶⁴ Lord Carrington, the British Minister of Defence, admitted with disarming candour that an analysis of 45 engagements of British forces between 1945 and 1959 revealed that on no single occasion had the engagement been foreseen.⁶⁵ Given the pattern of operational success this speaks volumes about British skill in improvising, though it must be a uniquely bad forecasting record.

Land, sea and air forces: their interconnectedness

Naval operations are hardly ever isolated activities. Not only do naval acts have their meaning elsewhere than on the sea space on which they take place, but many considerations apart from naval factors have to be taken into account when assessing capabilities. Indeed it is hardly valid today to talk about a 'naval balance': there are too many related capabilities involved.

The interdependence between naval affairs and military and political affairs on land has always been complete in terms of politics,⁶⁶ and has become increasingly so in terms of the use of armed forces. A small but significant milestone in this evolution was the coming into use of the adjective 'maritime' in association with nouns such as 'power' and 'strategy' in World War Two, as a result of the need to co-locate the command and control of aircraft which were being used for naval purposes with that of the associated warships: these shore-based RAF aircraft were known as 'maritime patrol' aircraft, and they were

directed from a 'Maritime Headquarters'.⁶⁷ In the last thirty years the concept of maritime strategy has expanded further, involving as it does many complex interrelationships. Land-based aircraft and missiles can cover the oceans: carrier-borne aircraft and submarine-launched missiles can cover the land. Activity on the sea has also become involved with another dimension as a result of the space satellite: communication, navigation and surveillance at sea have all been affected by this invention. In particular conflict situations, naval balances have no meaning apart from local army and air force balances: these in turn are affected by matters such as alliance potential and division of labour, and air staging and transit rights.

These brief points underline the fact that the concept of strategy cannot be easily compartmentalised. The distinction between 'land' and 'naval' strategy is both more complicated and less meaningful than ever before. A mark of this change has been the development of the ballistic missile-firing submarine. This weapons system has little to do with naval strategy as such, having no role in relation to hostile warships other than evading them: but it does have a critical role in relation to the decision-making which goes on in capital cities which may lie deeply inland. Warships have lost their almost exclusive proprietorship of naval strategy, but they have maintained their stake in limited international conflicts, and they have become one of the most important components of the central strategic balance.

Allies and treaties

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Treaties of various types can affect the character and operations of particular navies. In the inter-war years the Washington Treaties affected ship types and size, as well as the fortification and disposition of naval bases. Although this type of agreement no longer affects naval behaviour, various treaty provisions do affect naval policy: they define the allies and responsibilities of some navies; they impose some constraints on movement, as with the Montreux Convention governing the Turkish Straits; they place numerical limitations on some types of warship, as with the Protocol of the SALT I Treaty of May 1972; and they remove some areas from the arms race, as with the Seabed Treaty of 1970. While naval arms control has been a non-starter in most respects since World War Two, it nevertheless remains amongst the objectives of several states, and if successful would affect naval planning. Some countries bordering the Mediterranean Sea and Indian Ocean have called for an agreement to end the superpower naval confrontations there, and there is good reason to suppose that the Soviet leaders have

conceived arms control to be a potentially useful tactic in its naval confrontation with the United States.⁶⁸

The help which a particular navy might receive from allies is obviously an important factor in any assessment of capabilities. Foreign assistance affects a navy's 'disposable surplus' for urgent tasks. In this respect the Royal Navy has had a sometimes passive importance in US naval policy which it did not fully appreciate.⁶⁹ In addition, an alliance affects the worst case forecasting of adversaries. It was hardly surprising that Soviet authorities during the SALT II negotiations proposed the inclusion of the total SSBN potential of Britain, France and the United States on the assumption that they would act in concert in a major war. In addition, an integrated alliance such as NATO allows a degree of specialisation in naval tasks, though rarely does the impulse of national independence allow this to proceed very far.

Finally, the so-called 'progressive development of international law' affects naval planning in many important respects.⁷⁰ As O'Connell has pointed out, it impinges upon naval planning through the tactical use of ASW in times of political tension, the choice of areas in which operations are to be mounted or ships or devices deployed, and even procurement policy in cases where weapons or their launching vehicles would be of doubtful legality in any situation that can be envisaged. Administrative structures have to be adjusted to meet these problems, so that 'the lawyers and the seamen' can work closely together, and, it is hoped, understand each other's problems. Some progress has already been made along these lines in the US Navy and Royal Australian Navy, but this is not the case in many navies, 'although it is evident that any crisis would immediately reveal areas of confusion and indecision because the forward thinking about legal policy and rules of the game was lacking.' In sum, *the influence of law upon sea power* is of growing importance.

Conclusion

Assessing naval capabilities is an immensely complex task, involving far more than counting and classifying 'the warships of the nations'. Hardware is not everything, for 'capabilities' also consist of many non-material facets: however, a discussion of hardware in its static and dynamic aspects remains at the heart of the matter. For this reason interested observers depend for their education upon the direct assistance of those with professional experience: they alone can effectively provide the necessary specialised knowledge, technical

awareness and professional expertise.

Notes

1. Captain John E. Moore, *Jane's Fighting Ships 1973-74* (London: Sampson, Low, Marston and Co. Ltd., 1973), Editor's Foreword, p. 78.
2. Other widely used sources are *Les Flottes de Combat* (Paris), *The Military Balance* (London), and *Weyers Taschenbuch der Kriegsmotten bzw. Flottentaschenbuch* (Munich).
3. Including Admiral Gorshkov. Quoted by B. Thomas Trout, 'Naval Strategy and Naval Politics: Peacetime Uses of a Wartime Naval Force', *NWCR*, Jul.-Aug. 1974, p. 11.
4. For a general discussion of the problem, and one of the few sophisticated public presentations of this subject, see Nigel D. Brodeur, 'Comparative Capabilities of Soviet and Western Weapons Systems', in Michael McGwire, Ken Booth and John McDonnell, *Soviet Naval Policy. Objectives and Constraints* (New York: Praeger, 1975), pp. 452-68.
5. For example, on the eve of the outbreak of World War One, in Chapter XIII of *From the Dreadnought to Scapa Flow* (Arthur J. Marder, Oxford University Press, 1961), Vol. 1, and on the eve of Jutland in Chapter XVII of *ibid.*, Vol. 2, and Chapter I of *ibid.*, Vol. 3.
6. Captain S. W. Roskill, *The Strategy of Sea Power. Its Development and Application* (London: Collins, 1962), pp. 109-10.
7. See Captain S. W. Roskill, *The Navy at War. 1939-1945* (London: Collins, 1960).
8. Captain S. W. Roskill, *The War at Sea, 1939-1945*, Vol. 1, *The Defensive* (London: HMSO, 1954), History of the Second World War, UK Military Series, Chs. I-IV.
9. S. E. Morison, *History of United States Naval Operations in World War I* (London: Oxford University Press, 1948). See Vol. 1 (1948), p. ix. The Introduction was written by Commodore Dudley W. Knox USN (Retd.).
10. Given the fearsome picture of the Soviet submarine threat to Western shipping in the post-war years, raising as it did the spectre of another Battle of the Atlantic, it is salutary to be reminded that, however chilling the absolute total of Soviet submarines, only 9 per cent of the total was based in the Northern Fleet, with ready access to the main shipping routes. See R. W. Herrick, *Soviet Naval Strategy: Fifty Years of Theory and Practice* (US Naval Institute, Annapolis, 1968), p. 131.
11. Order-of-Battle is not a traditional naval term, but it is one which seems to be gaining increasing usage, and it is descriptive.
12. See, for example, the Annex 'The Technology of Maritime Warfare', pp. 45-54 in J. L. Moulton, *British Maritime Strategy in the 1970s* (London: RUSI, 1969); Laurence Martin, *Arms and Strategy* (London: Weidenfeld and Nicolson, 1973), Chapter 5, 'The Maritime Battle', p. 14. Factual summaries of trends have been provided by Vice-Admiral B. B. Schofield's regular 'Developments in Maritime Forces', in *Brassey's Annual* (London: William Clowes). The Editor's introduction to *Jane's* is usually awaited for its pungent comments on trends in naval developments.
13. Brodeur, *op. cit.*, pp. 452-4. See also Gorshkov's comments, quoted by Thomas Trout, *op. cit.*
14. Brodeur, *ibid.*, p. 461.

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Prize Essay 1985

ENDGAME

By Captain Daniel S. Appleton, U. S. Navy (Retired)

A few months ago, a major symposium was convened at the Naval Science University of America to examine factors affecting the U. S. Navy's ability to fight. The following is an account of the second session of the symposium.

Vice Admiral Vincent Gresham, President of the University, began the session.

Members of the conference, I offer you the following scenario: You are members of the staff of the Commander, U. S. Carrier Task Force 177, under way in the South China Sea. Satellite surveillance has told you that a large Soviet surface force has just cleared Cam Ranh Bay and is standing south toward Singapore at high speed. Suddenly, you receive the following message from the commander of the Soviet force:

To the commander of the U. S. Task Force 177:

1. The Soviet Union has recognized the legitimate claim of the People's Revolutionary Government of Malaysia (PRGM) to the effect that the Malaccan Strait

constitutes part of its national territory. The Soviet Union has been requested to assist in enforcing the efforts of the PRGM to halt and inspect ships passing through the strait to ensure compliance with laws prohibiting contraband cargoes. I am proceeding to provide the requested assistance.

2. You are advised that any attempt to interfere with my actions will constitute violation of international law and will be overcome by force.

3. You are further advised that if you initiate use of nuclear weapons, I shall destroy your aircraft carriers and replenishment ships with similar weapons.

The question I place before you is simply, "What will your task force do?" To make the soundest possible deci-

sion, you will require some understanding of what has prompted this Soviet action. Let me give you a bit of help.

Allow me to present Admiral P. Ulyanov, until recently Deputy Commander in Chief for Combat Training of the Navy of the Soviet Union. Admiral Ulyanov.

Thank you, Admiral Gresham. Ladies and gentlemen of the conference:

This morning, I shall explain why a major naval battle between forces of the United States and the Soviet Union may be closer in the future than you may have thought, and further, why the outcome of this first battle could be critical to your country and to the world.

To make these points, I shall describe the circumstances that led to the confrontation Admiral Gresham has suggested. You may consider some of these circumstances to be imagined. When they are all combined, however, you will see that they represent a formidable challenge. How real and how urgent this challenge may be is a matter you must judge for yourselves.

First, I must tell you why I am in your country. The reason is simply that I have become convinced that the course on which the Communist Party of the Soviet Union is embarked will, if not altered, lead the people of the world into tragedy. This has already happened in my country. Even Lenin believed it necessary to apologize to the Russian people for the course on which he had led them.

I begin by explaining how the present master strategy of the Soviet Union relates to the future of the United States.¹

The Soviet Strategic Objective: The Soviet Politburo does not seek immediate dominance over the United States because it believes this will come naturally over time. What is imperative to the members of the Politburo is the end of U. S. support of Western Europe. The continuing strength of Western Europe weakens the adherence of Eastern European nations to Soviet influence. In case of war, this could require a massive commitment of Soviet resources needed for other missions. Thus, they perceive the sustained material support and influence of the United States in Western Europe as an eventual threat to the security of the Soviet Union.

The Soviet Defense Council believes elimination of this threat must begin at once. It advances two reasons for this urgency. First, Soviet political problems are increasing. National economic programs are not meeting prescribed goals. Pressures are building among the many nationalities within the Soviet Union and among Warsaw Pact states for greater autonomy. Worldwide communist parties are departing from Soviet party doctrine. Second, the Soviet Union now possesses a substantial military superiority over any combination of its potential enemies; however, because of the foregoing national difficulties and the growing strength of other world powers, this superiority may be lost within 20 to 30 years.

Therefore, the council intends to ensure Soviet security for the long term while the opportunity to do so exists. Its immediate strategic objective is to eliminate the United States as a first-rank world power within 20 years. As you

will see, some or all of the steps to achieve this aim are already within Soviet capabilities. This is a most dangerous time for the Western world.

The Soviet Strategic Estimate: The Soviets' plan to achieve their strategic objective is called Endgame, a term familiar to players of the game of chess. It is based on the following assessment:

► U. S. industries depend heavily on a lifestream of imported minerals and on foreign markets for goods produced. The bulk of these minerals and goods must be transported by sea.

► The U. S. Merchant Marine and shipbuilding industries are in near helpless condition. More than 95% of U. S. ocean commerce is carried by ships controlled by foreign governments and manned by people of all manner of religious, political, tribal, and superstitious convictions. Such ships and people cannot be depended on in situations of high stress.

► All commercial ships daily encounter situations where high stress may be created or increased. They must load and unload in many foreign ports and be serviced by facilities ranging from bare backs to sophisticated machines. They must pass through straits, canals, and narrow seas subject to a host of man-made and natural hazards.

► There are powerful forces in U. S. society that respond rapidly and aggressively to any hint of nuclear war.

► The Soviet Navy has overtaken the U. S. Navy in overall strength, and the Soviet margin of superiority is still increasing.

By taking advantage of these conditions, the Soviet planners believe they can achieve their aims without engaging in a great land war, a condition that is important to them for many obvious reasons. Their primary target will be your ocean transport. Their step-by-step tactics will seek to deplete the U. S. economy to a point of national helplessness before your public becomes willing to resist. Their method of attack will consist of three phases of increasing intensity.

Endgame Phase 1: At first, the Soviet scheme will hardly be noticeable. In foreign ports, where your cargoes are loaded or discharged, terrorism and sabotage will increase against harbor pilots, channel markers, dockworkers, and port facilities. Explosions will be caused by limpet mines that cling to ships transiting canals. Ships in narrow waterways will suffer breakdowns and run aground. Piracy and hijackings will double. Rumors will be spread about the dangers of manning any ship that carries U. S. cargo. Labor and maintenance costs will increase, and insurance rates will rise. The few U. S. shipping concerns that remain will fail at a rate even faster than the current one firm every year.

All these acts can be executed by "non-Russian" agents and terrorists backed by "non-Soviet" organizations, which will do the planning, identify the targets, organize and direct training, and provide logistics. You are aware that structures for these purposes already exist. All that remains is for their energies to be focused on the ships, people, and facilities that handle U. S. cargoes.

Meanwhile, during the years of Phase 1, the Soviet Merchant Marine will continue its steady growth and price-cutting policies until it becomes the leading carrier of the world's—including America's—ocean cargoes.

Thoughtful observers of international strategy will soon notice that these happenings are purposefully guided. However, your public has become so inured to the warnings of these "Cassandras" that their new alarms will hardly be taken seriously.

Endgame Phase 2: In parallel with their clandestine measures, Soviet planners will have begun consolidating a global system of bases from which more powerful attacks can be directed against U. S. trade routes. Such bases can be established by means of treaties of friendship and non-aggression, trade delegations, agreements for economic and military aid, fishing agreements, and alliances for mutual defense. In some areas, local international conflicts will be of considerable advantage to the Soviet Union. Let me be more specific.

Your government has declared 31 ocean trade routes to be essential for promotion, development, expansion, and maintenance of U. S. foreign commerce. As you see from any map of the world, the most vulnerable of these searoutes pass through the Caribbean, near the eastern and western coasts of Africa, along the southern Mediterranean littoral, through the Middle East, past the Southeast Asian islands, along the East Asian coast, and along the coasts of Central and South America. Especially important would be the critical choke points: Iceland, Gibraltar, Suez, Hormuz, Bab el-Mandeb, Malacca, and Panama.

Some of the nations along these routes will be persuaded by Soviet advisors to establish control zones reaching up to 200 miles offshore as territorial seas or as exclusive economic zones. Similar zones may be "reserved"

for naval exercises or long-range weapons tests. Within such zones, ships bearing U. S. cargoes may be intercepted, trailed by fast patrol craft, warned to change course, subjected to low overflights, and even fired upon or boarded and searched. They may then be brought into port for lengthy inspections, have their crews detained or their cargoes confiscated, or be subjected to exorbitant fines and fees. Where regional conflicts are in process, the belligerent nations, guided by the Soviet Union, may declare blockades or announce intentions to take violent action against ships intruding upon "their" waterways.

If the foregoing actions prove inadequate, then guerrilla attacks may be launched from unidentifiable vessels or mobile launchers ashore against ships of Liberian, Honduran, and Panamanian registry, which together carry more than 50% of all U. S. foreign commerce. Soon, these and similar nations will begin to withdraw the privilege of flags of convenience from U. S. shippers.

Potential Consequences for the United States: The first two phases of Endgame will increase U. S. shipping costs to the point that your ocean commerce should be reduced by about two-thirds within 15 to 20 years. Think what the economic, human, and political consequences of these actions could be.

The industrial output of the United States could be reduced by more than half because of cuts in fuel, raw mate-

Endgame Phase 2: "Soviet planners will have begun consolidating a global system of bases by means of trade delegations, agreements for economic and military aid, and alliances for mutual defense. Local international conflicts will be of considerable advantage." A Soviet ship unloads cargo in Corinto, Nicaragua.

rials, and overseas markets. Your farming industry would be decimated. Your national deficits and rates of inflation would increase by severalfold. As costs of living and rates of unemployment rocket upward, your citizens would suffer drastic drops in their standards of living. Drug traffic and crime rates would soar. Fuel for transportation and heating would be rationed. Local law enforcement and fire protection services would be cut to the bone.

Inevitably, these human impacts would result in severe civil unrest. Massive demonstrations in major cities would require declarations of martial law. Strong political pressures would build toward accommodation with the Soviet Union.

All of these effects together would produce major adjustments of governmental priorities and thus lead toward wide-scale changes that the Soviet Union has long sought: general withdrawal or expulsion of deployed U. S. military forces, cancellation of many U. S. foreign overflight and base rights, collapse of NATO, abrogation of other Western collective defense treaties, and loss of remaining U. S. influence over control of the Panama Canal.

Endgame Phase 3: You may object that the United States would certainly not allow such events to go unchallenged. Your country has gone to war before in defense of freedom of the seas. Already, your President has declared certain ocean areas to be vital to your national security and to be kept open by military means if necessary. But the Soviet planners pose this most critical question: *at what point* would the United States resort to military action against Soviet forces? And what sort of extended war would you be willing to risk? Perhaps, a general war with the Soviet Union? A war limited to the sea? A sea war including use of nuclear weapons? Let us examine these possibilities.

To begin with, the Endgame plan provides that no single event within Phase 1 or Phase 2 could remotely justify, in the eyes of your people, initiation of general nuclear war. Indeed, many events similar to those they contemplate have occurred or are occurring even today. There has already been substantial impact on your ocean commerce, yet with no serious thought of so radical a response.

As the Soviet garotte tightens around America's jugular, however, armed confrontations at sea are bound to occur. The first such confrontation will signal the start of Endgame Phase 3, wherein the next and final Soviet objective will consist of unassailable domination of the world's commercial sea-lanes. And the critical aspects of this first meeting—whether a violent battle takes place, what weapons are used, whether a decisive victory results—will have much to do with the future of our world. Let me take you back to the battle scene.

The Battle Scene: Now, you are again the commander of that U. S. carrier battle group in the South China Sea. Your force is in good position to safeguard commerce with your Asian trade partners and to protect the more than 100 ships that transit the Strait of Malacca every day, many of the latter carrying crude oil, rubber, chromium, industrial diamonds, gold, manganese, platinum, and silicon destined for U. S. refineries and factories. You have just received the Soviet commander's warning to stand clear.

You are also aware of certain characteristics of Soviet warfare which are not spelled out in the Soviet message. When this enemy attacks, he will attempt to overwhelm your defenses. He will focus his main assault on your carriers, antisubmarine units, and replenishment ships. He will attack your forces simultaneously at sea and in ports bordering the South China Sea. He will employ chemical weapons without restriction. His submarines and shore-based aircraft are undoubtedly already within missile range, and many are prepared to fire nuclear warheads on command.

And now again, what will your task force do?

I will tell you what the Soviets *expect* you will do, today or 20 years from today. They expect you will retire without a fight. Here is their reasoning.

To begin with, the United States would not believe that this battle could automatically trigger a general nuclear war. Therefore, such a prospect by itself would not deter America's willingness to engage. However, your President would have to consider very seriously the prospect of this battle's escalating into a large-scale war at sea. In this respect, he would perceive that the war-fighting capability of the Soviet Navy exceeds that of the U. S. Navy so greatly that, if this incident should expand into a great naval war, the United States would unquestionably lose.

This audience will naturally argue my prediction of superior Soviet sea power. But you must understand the logic behind this Soviet belief; for if you do not, and fail to counter what the Soviets consider their special areas of overwhelming naval advantage, then the world may soon stand at the threshold of its final conflict.

The Soviets believe it to be common knowledge among military strategists that their huge submarine fleet, equipped with modern long-range missiles, could impose overwhelming burdens on critical operations upon which your Navy has focused construction, tactics, and training. For example, your amphibious assault and fleet logistic operations involve ships whose movements are so re-

stricted by their missions as to render them acutely vulnerable to attacks by these missiles. Convoy operations can be interdicted simply by inflicting damage upon sensitive cargo-handling facilities. Prepositioned combat support ships can be destroyed from long range even before getting under way. And, of course, your military forces placed ashore in any distant land would be most difficult to support in light of the depleted condition and extreme vulnerability of your merchant marine.

The Soviets recognize that your Navy relies heavily on its ability to use nuclear weapons to offset these Soviet strengths. Always, therefore, as part of the Soviet strategy, the specter of nuclear war will be kept before the eyes of your people. The Soviets will continue using diplomacy, world propaganda, and your own news media to ensure overwhelming opposition to any possible use of nuclear weapons. Their success to date has been dramatic. The notions of *détente* and of freezing nuclear arsenals have been accepted in the United States with enthusiasm.

The Soviets believe that engaging in an outright naval battle would be perceived by your leaders to lead to certain disaster; either to a war at sea that the United States could not win without nuclear weapons, or to national suicide if such weapons are employed. Thus, they are nearly certain that when this naval confrontation occurs, your force will be ordered to back down. But perhaps this certainty could be their downfall.

For you will also know that if your force turns away or is severely defeated, your country will remain in such desperate trouble that its only recourse may be to risk a greater war. If there is a battle today but no clear winner, the future could be equally ominous. Only if your force fights and wins a resounding victory, or if the Soviets avoid the engagement, will there remain a reasonable chance of preserving the American way of life without a catastrophic war.

As these two forces prepare to oppose each other, therefore, any Soviet tactical decision based on the assumption that the Americans will back down could amount to a critical mistake. The following would more likely happen.

As the U. S. commander, you will aggressively challenge the Soviet force. The enemy will respond with a massive attempt to win the "battle of the first salvo." Your weapons will be in flight at nearly the same instant. Within moments, both sides will suffer enormous damage. Many hundreds of men and women will be quickly killed or wounded.

From this point on, the course of the battle will not depend on comparative levels of high technology; the outcome will depend on the skill with which those sorely wounded men and women are able to save and use the weapons and machines that remain functional. At this moment, naval seamen will become warriors. This is even more true today than in the days of the galleys or the great sailing ships, or of Tsushima or Pearl Harbor.

The design of every modern naval ship, though it appears to focus on high technology, has come to place extraordinary reliance on human beings. The number of people in every ship has been reduced to the fewest possible. When a station calls for a man, his competent performance has become indispensable.

Yet in extreme violence, human beings in warships are far more vulnerable than complex machines. Human competence suffers not only from physical injury, but also from fatigue, fear, suspense, disease, hunger, exposure,

and lack of trust in their fellows or belief in their cause. All these things affect their ability to fight and win.

Which side will prevail in this battle in the South China Sea, or wherever in the world this confrontation might occur? The side that will prevail is the side whose people are most superbly prepared to perform skillfully in titanic violence: that force which is composed of truly "elite" fighting men. Each side's confidence in its possession of this extraordinary quality may decide whether this battle will even begin.

Toward the Elite Force: How can your naval seamen achieve this truly superb ability to fight? I wish to offer five recommendations based partly on my knowledge of Soviet aims and capabilities and partly on my limited observations of your people at work and in training:

► *You must cease to distinguish between peacetime and wartime.* The U. S. Navy is in as great danger now as it was in the days before the Japanese struck Pearl Harbor. Too often have I heard your men say—even during battle drills—"We would do things differently in wartime."

► *You must be able to defend your ships in port at home and abroad.* The Soviet Navy has a history of successful surprise attacks against enemies in port. The potential for damaging ships in port has been greatly increased by long-range missiles and the underwater weapons readily available to terrorists.

► *You must regard all naval ships as warships.* I speak particularly of replenishment and repair ships. Many people in your logistic ships do not think it important to be able to operate effectively in extreme violence.

► *You must equip your ships to train themselves to fight.* It has been obvious that the battle skills of your sailors deteriorate rapidly after their ships leave refresher training.

► *You must teach your people why expert ability to fight is important.* Many do not understand the threat they face or the consequences to follow if they fall short of excellence.

Now let me remind you again of America's critical trade routes and the bordering nations where the Soviets need support for their Endgame. Then observe which of these nations may be already under a sufficient degree of Soviet influence: Iceland, the Cape Verde Islands, Libya,

"The survival of civilization in our time may rest upon the ability of the people in your fleets to perform magnificently when they and their ships have been sorely hurt." Damage control teams fight the blazes on the USS Enterprise (CVAN-65) in 1969.

Syria, Algeria, Iraq, Congo, Angola, Mozambique, Madagascar, the Seychelles, Ethiopia, South Yemen, Afghanistan, Kampuchea, Vietnam, Nicaragua, Cuba, Peru. Note that the plan has but a short way to go before it can be fully implemented in a manner deadly to you. When it is implemented, if it has not been already, the moment will come when great naval forces are posed against each other.

I tell you that at that moment the survival of civilization in our time may rest upon the ability of the people in your

fleets to perform magnificently when they and their ships have been sorely hurt.

Thank you for your attention. I have long been your adversary in politics but never in our mutual desire for the world to exist in peace.

Admiral Ulyanov, we are most grateful for your illuminating views and thoughtful recommendations. Let me conclude this session with two remarks.

The so-called Endgame hypothesis was examined before this presentation by several of our principal naval commanders and maritime experts.² Their general consensus was the following:

- ▶ It is probably true that large-scale disruption of America's ocean commerce could have many of the impacts visualized. However, the Soviet capability to cause such disruption, along with potential consequences and feasible counteractions, has never been thoroughly examined.
- ▶ It is unlikely that Third World countries could be exploited in the manner conjectured.
- ▶ It is beyond question that the United States would at some point go to war to defend its ocean commerce.
- ▶ As long as we pursue our present goals, the Soviets will not possess the degree of naval superiority Admiral Ulyanov predicts.

These views you must explore further and take fully into account.

There were some gentle smiles in this auditorium today as you listened to our guest's presentation. Perhaps Endgame came across to you as fantasy. However, I trust you will also recognize that nearly every condition he described reflects either a well-documented professional appraisal or a fact demonstrated by recent history. What Admiral Ulyanov has done for us is fit many pieces together. Whether or not these various fragments represent components of a cohesive plan, the picture that emerges is one of immense and imminent danger to the Free World.

I note that a high-level Soviet official has taken pains to point out that the United States imports 69 of the 72 materials without which its industry and military could not

function and that 99% of these materials are transported by sea. That official is Admiral of the Fleet Sergei Gorshkov, Commander in Chief of the Soviet Navy for nearly three decades.

Members of the symposium, if you believe that the Soviet Union possesses a realistic capability to disrupt the ocean commerce of the United States, then you must ask why they should not choose to execute that capability at any moment. If and when they do, there will be little to stop them but our national resolve and our Navy's ability to fight.³

¹The Soviet strategy described is based in part on logic suggested by E. N. Luttwak's *The Grand Strategy of the Soviet Union* (New York: St. Martin's Press, 1983).

²Although the scenario is fictional and the Soviet plan is hypothetical, the cited consensus of maritime authorities is factual. Those who offered substantive comments included the commanders in chief of the U. S. Atlantic and Pacific commands and of U. S. Naval Forces, Europe; Admiral Thomas H. Moorer, U. S. Navy (Retired); the intelligence staff of the Chief of Naval Operations; and principal associates of the American Institute of Merchant Shipping, the Transportation Institute, the American Enterprise Institute for Public Policy Research, the Strategy Department of the U. S. Naval War College, the Committee on the Present Danger, the Shipbuilders Council of America, and *National Defense* magazine. Advice was received from Rear Admiral E. J. Oth, U. S. Navy (Retired); Captain W. J. Ruhe, U. S. Navy (Retired), publisher of *Submarine Review*; John M. Rau, former president of the Navy League of the United States; Rear Admiral E. A. Rodgers, U. S. Maritime Service (Retired), former Superintendent of the Maine Maritime Academy; Vice Admiral Gerald E. Miller, U. S. Navy (Retired), former commander of the U. S. Second and Sixth fleets; Professor Kenneth E. Boulding; and Professor John L. King. Commander Frederick C. Dyer, U. S. Naval Reserve (Retired), George H. Conrad, Captain William H. MacFaden of the SS B.T. San Diego, and my wife and sons provided valuable critical reviews.

³An annotated bibliography can be obtained by writing the author in care of U. S. Naval Institute Proceedings, Annapolis, MD 21402.

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13

The Soviet Union

Strategic Forces

The Soviet strategic inventory continues to be modernized. The SS-11 total has been reduced by 30; the SS-19 total shows a corresponding increase. We can assume that the earlier SS-19 single warhead has been replaced by the 6 MIRV of its Modification 3. Because the silos are outwardly similar, figures must be used with caution. Modification 4 to the SS-18 ICBM, introduced in 1982, may now affect some 170 launchers. The SLBM inventory shows one less *Y-I* submarine and one less *H-II* (with its SALT-accountable SS-N-5 SLBM), but one more *Typhoon*-class submarine (20 tubes) is now in service. Three or four more *Typhoon* boats are reported under construction. SS-20 IRBM deployment has continued; the total is now some 378 launchers. The SS-5 IRBM has been withdrawn; the SS-4 IRBM total remains at 224.

The ICBM launcher total remains at 1,398. With the introduction of smaller (and more accurate) warheads, total potential deliverable megatonnage is somewhat lower.

At sea, the retirement of more SS-N-5 and some SS-N-6 missiles and the introduction of the SS-N-20 missile, which last year at this time was not believed to be operational, has resulted in a net increase of launchers by one to 981. The total of SALT-accountable submarines remains the same. Newer SLBM warheads are almost all MIRV, and are believed to have greater accuracy than their predecessors. SLBM megatonnage has increased significantly.

IRBM changes increase the total number of IRBM launchers by 2, to 578. The number of warheads also increases by 38, to some 1,358, while the megatonnage decreases by 7.9, to 394.1. The overall missile total (long- and intermediate-range) is therefore 2,757 (excluding possible reloads). We have not here attempted to segregate missiles with a European role from the total but would observe that the 880 remaining SS-11 and the SS-19 ICBM have a variable-range capability, enabling them to target Europe and its approaches.

In the long-range bomber force the only change noted has been the modest increase of 20 in the Tu-26 *Backfire* inventory. The new *Blackjack* A bomber has not yet entered service. Some ten of the Tu-16 withdrawn last year may have been modified for the ECM role.

The strategic defensive forces also show some changes. Although the ABM launcher force still remains at 32, reports suggest that new missiles are being deployed. A little more information on radar deployments has become available; it is not clear whether this represents new deployments or merely new data.

General-Purpose Forces

Details of organizational changes within the Soviet defence structure remain scanty. The forces have been grouped into three main 'Theatres' - Western, Southern and Far Eastern - with a Central Strategic Reserve area comprising the Moscow, Volga and Ural Military Districts (MD). The Western Theatre, which includes the non-Soviet Warsaw Pact nations, is further subdivided into three Theatres of Military Operations (TVD) which provide strategic planning and operational control for continental, oceanic and intercontinental forces (missile forces, SSBN and bombers) assigned to them. The Western Theatre is the strongest, with the most modern equipment. The Far Eastern Theatre is not known to be divided into TVD, but, given its importance and the size and operational diversity of the area, some measure of local control would appear to be necessary.

In wartime, the East European Warsaw Pact divisions would be incorporated within the Soviet Army structure, thus providing integrated commands for the North-Western, Western and South-Western TVD. The basic operational command is the Front. A typical Front comprises a tank army and two all-arms armies plus supporting elements, a total of six tank and eight motor rifle divisions. Variations in this 'typical' organization are governed by operational conditions.

On the basis of present East European and Soviet army deployments, the Western TVD could have four Fronts: two in East Germany, one in Czechoslovakia, and one in Poland. The two Fronts in East Germany total 12 tank and 13 motor rifle divisions; three motor rifle divisions less than two typical Fronts. In Czechoslovakia and Poland the total would be 14 tank and 16 motor rifle divisions; two tank divisions above the 'normal' level. Reinforcements could be quickly available from the Byelorussian MD, which contains 10 tank and 4 motor rifle divisions.

The North-Western TVD would comprise the Baltic MD, which, by incorporating the Polish marine division, could operate as an independent (i.e., Moscow-controlled) Front against the Baltic Coast including Denmark. The Leningrad MD can field a Front of two all-arms armies against the northern Scandinavian regions. It, too, might come directly under Moscow. In the South (the South-Western TVD), though no Soviet troops are deployed in the countries concerned, national forces in Bulgaria and Romania can mobilize two all-arms armies, each 4 tank and 16 motor rifle divisions. Hungary can mobilize 1 tank and 5 motor rifle divisions or one all-arms army and 3 extra motor rifle divisions. Soviet forces in the Carpathian and Odessa MD would add 4 tank and 15 motor rifle divisions. The Kiev MD, with its 6 tank and 4 motor rifle divisions, could reinforce either the Western or South-Western TVD.

The Southern Theatre, opposite Turkey's eastern frontier, would comprise forces from the Trans-Caucasus MD, 12 motor rifle divisions, supported by forces from the North Caucasus MD (1 tank, 7 motor rifle divisions), plus perhaps a proportion of the 7 motor rifle divisions in the Odessa MD, or the 3 motor rifle divisions in the Volga MD.

The Soviet Air Force has also been reorganized and now comprises twenty Regional Commands and five Air Armies. This reorganization has had the effect of changing considerably the categorization of Soviet fighter aircraft, and a number of questions still remain. Three of these Armies have taken over the strategic and strategic/tactical roles of the Long-range Air Force. The *Voyska-PVO* (National Air Defence Troops) has taken over some of the former Frontal Aviation interceptor inventory, as well as that of the Air Defence Forces of the former *PVO-Strany* and the Army air defence troops. The ten air defence districts have now been reduced to five. The *Voyska-PVO* and the Air Armies are now co-ordinated at the Theatre HQ. In wartime the control of air and ground forces and air defence would be integrated at the TVD level, which should give greater operational flexibility.

Tank regiments now have an integral artillery battalion. Some artillery regiments at the Army level are being equipped with the (nuclear-capable) 240mm SP mortar. The towed 122mm gun/howitzer is in many cases being replaced by an amphibious SP version. Two new versions of the BM-27 240mm MRL are in service. The divisional reconnaissance battalion is now a formidable and highly mobile force with a platoon of medium tanks and a mix of light combat vehicles, many with light guns or anti-tank missiles. Air support, in East Germany at least, includes a helicopter brigade integral to each Army, giving a total deployment of some 400 helicopters, about half of which are armed Mi-24 *Hind*, some with AS-14 ATGW. Battlefield support SSM - *Frog*, *Scud* and *Scaleboard* - are being replaced by SS-21, SS-23 and SS-22 respectively. The SS-22, which some sources suggest is an up-rated SS-12, has a range of about 950 km - somewhat less than that of the *Pershing II* - but its 500-KT warhead has about twice the yield of its US counterpart.

The Navy continues to develop its submarine fleet, and modernization of the surface fleet also continues. A second *O*-class cruise missile submarine and two more *V-III* attack submarines are in service. Some older *C-I*, *W*, and *E* boats have been withdrawn, and new *M* and *S* boats are on trials. Doubt remains over the new role for the 10 *Y-I* SSN whose SLBM were removed under SALT constraints. More *O*, *M*, *S*, *K* and *T* boats appear to be under construction.

A 75,000-ton nuclear aircraft carrier is under construction; a third *Kiev*-class carrier is now in service, and a fourth is on trials. Two more *Slava*-class cruisers are under construction. A third *Sovremennyy* and two more *Udaloy* GW destroyers have also joined the fleet. Five more of each are reported to be building, as are a number of smaller combat vessels.

New Equipment

There has been little new information regarding the two Soviet ICBM reported last year as being under development. One was reported as the PL-4 (believed to be a development of the SS-17), first test-launched in October 1982. The other was the PL-5 (originally reported as a modified SS-13 mobile ICBM), first launched in December 1982. (The PL designator stands for the test area, Plesetsk, where these missiles were first observed.) Both are reported to use solid fuel. They have been assigned the numbers SS-X-24 and -25 respectively. Controversy continues to surround the question of which is a 'new type' ICBM as defined in SALT II (or whether both are). A new SLBM - SS-NX-23 - is reported in development and may be a replacement for the SS-N-18.

Three new long-range cruise missiles are reported to be in development. Designated SS-NX-21, AS-X-15 and SSC-X-4 (sea-, air- and ground-launched respectively), their ranges are estimated at 3,000 km. The AS-X-15 is said to be capable of being launched from *Bear*, *Backfire* and the new *Blackjack* A bombers. *Bear* H bombers are reported back in production to carry ALCM. The SSC-X-4 is believed to be carried in a four-tube mobile launcher.

Finally two new anti-ballistic missile systems - the SH-04 (exo-atmospheric) and the SH-08 (endo-atmospheric) - have been reported. New aircraft types in service include the MiG-29 *Fulcrum*, equipped with a new air-to-air missile (the AA-X-10), and the Su-25 *Frogfoot*. The MiG-25 *Foxhound* has been redesignated the MiG-31. The Su-27 *Flanker* air superiority aircraft is being evaluated. Airborne command and control is being upgraded, and the Il-76 *Mainstay*, which is to replace the present *Moss*, is reported to be in production. A modest increase in the aircraft inventory is reported compared with 1983.

Defence Expenditure

No single figure for Soviet expenditure can be given, since precision is not possible on the basis of present knowledge. The declared Soviet defence budget excludes a number of elements such as military R&D, stockpiling and civil defence - indeed some contend that it covers only the operating and military construction costs of the armed forces. The problem of arriving at a current budgetary figure was discussed in previous editions of *The Military Balance*. The official defence budget of 17.05 bn roubles each for 1983 and 1984 equals about 4.8% of total government expenditure for 1983 and 4.66% of that for 1984, or about 3.2% of 1983 NMP, according to Soviet data of the latter. Some western estimates of the burden of military expenditures on the GNP range from 10-20%. Moreover, Western experts and defence agencies are not agreed on the real change in Soviet defence spending. For instance, whereas the US Central Intelligence Agency had been maintaining that such expenditure was increasing by 2% annually, in the summer of 1984 the US Defense Department argued that the increase had risen to 3-4% for 1982 and 1983. The British Ministry of Defence has concurred with the former view.

Soviet pricing practices are quite different from those in the West. Objectives are set in real terms with no strict requirement for money prices to coincide with the real costs of goods and services. The rouble costs of the defence effort may thus not reflect the real cost of alternative production forgone; and, in turn, a rouble value of defence, expressed as a percentage of NMP measured in roubles, does not reflect the true burden.

If rouble costs are converted into dollars to facilitate international comparisons, the difficulties are compounded. Ideally, the exchange rate should relate the purchasing power of a rouble in the USSR to that of a dollar in the USA. The official exchange rate - \$1 = 0.7410 (1983), 0.8000 (1984) - is considered inadequate for this purpose, and there is no consensus on an alternative methodology.

One alternative approach (estimating how much it would cost to produce and man the equivalent of the Soviet defence effort in the USA, and by so doing to establish a common price base on which to make total cost comparisons) is also not entirely satisfactory. Incomplete and inaccurate data make such indexes unreliable. In practice this particular method is considered to overstate the USSR defence effort relative to that of the USA.

That the USSR, like other countries, faces mounting economic problems (e.g. falling NMP GDP growth rates, inflation and ever-increasing military establishment costs) is indicated in an article by Prof. Maj.-Gen. Gurov (*Krasnaya Zvezda*, 9 December 1982) which is worth quoting at length:

Under present-day conditions the interrelationship between military matters and the economy has become unusually close, and demands on material provision for troops and naval forces have increased sharply. First, there has been an unprecedented increase in the volume and a substantial alteration in the structure of the military consumption of material facilities and resources. Second, armies and navies are now equipped with the most complex systems of weapons and military hardware, which, furthermore, are virtually renewed every 10–12 years, which requires a highly developed and dynamic economy and advanced scientific and technical potential. Third, there has been an increase in manpower costs and the cost of means of armed struggle. Fourth, substantially greater demands have been made on the moral-political qualities and general educational, technical and professional training both of workers engaged in the military production sphere and of Armed Forces' personnel.

Source	Price base	Soviet Defence Expenditure				% Annual growth rate	
		1970	1979	1981	1982	1970-80	1982-3
<i>Billions of Roubles</i>							
USSR ^a	Current	17.90	17.20	17.054	17.05	-0.4%	—
CIA ^b	1970	44-53	59-75	70.75	—	3.7%	—
Britain ^c	Current	—	76-81	84-92	—	4.0%	2.0%
Rosefielde ^d	1970	43.5	91	—	—	8.5%	—
DoD	—	—	—	—	—	—	3-4%
<i>Billions of Dollars</i>							
USSR ^e	Current	—	—	—	23	—	—
Joint Chiefs of Staff ^f	1983	188	241	267	—	2.8%	—
Rosefielde ^g	1978	104.5	160.9	—	—	4.9%	—

^a Official declared budget.

^b For 1970–1980: Joint Economic Committee, Congress of the USA: *USSR: Measures of Economic Growth and Development, 1950–1980* (Washington DC: USGPO, 1982) p. 123; for 1981: Joint Economic Committee, *Allocation of Resources in the Soviet Union and China – 1982* (Washington DC: USGPO, 1983) p. 79.

^c *Statement of Defence Estimates 1984* (London: HMSO, Cmnd. 9227–I).

^d Steven Rosefielde: *False Science. Under-estimating the Soviet Arms Build-up* (New Brunswick NJ: Transnational Books, 1982) pp. 186–8.

^e British Broadcasting Corporation, *Summary of World Broadcasts* (SU/7156 A1 4), 14 Oct. 1982.

^f Organization of the Joint Chiefs of Staff, *Military Posture for FY 1983* (Washington DC: USGPO, 1982) p. 16 (figures taken from diagram).

^g Rosefielde, *op. cit.*, pp. 184–5, note 3.

A sample of different estimates of Soviet defence expenditure, both in roubles and dollars, is given in the table, together with official figures for the defence budget published by the USSR. For a critique of the CIA estimates of Soviet defence expenditure, see Franklyn D. Holzmann, 'Soviet Military Spending: Assessing the Numbers Game', *International Security*, Spring 1982, pp. 78–101. For a critique of Steven Rosefielde, see D. F. Burton, 'Estimating Soviet Defense Spending', *Problems of Communism*, March–April 1983, pp. 85–93. A convenient overview of the problems and the debate can be found in Sub-

committee on International Trade, Finance and Security Economics, Joint Economic Committee, *Soviet Military Economic Relations*, proceedings of a workshop, July 7 and 8, 1982 (Washington DC: USGPO, 1983).

Population: 274,300,000.

Military service: Army and Air Force 2 years.

Navy and Border Guards 2-3 years.

Total armed forces: 5,115,000.*

NMP 1982: r 523.4 bn. Est 1983: 544.0 bn.

Est GNP range 1983: \$1,378.5-1,752.0 bn.

NMP growth: 4% (1982), 4% (1983).

Inflation: 1.0% (1982).

Debt: \$20.1 bn (1982).

Est def exp and exchange rate: see text above.

Strategic Nuclear Forces:

OFFENSIVE:

(a) Navy: 981 SLBM in 79 subs (942 SLBM and 62 subs within SALT Agreement, plus 39 SLBM in 7 subs outside it).

2 Typhoon SSBN x 20 SS-N-20 (40 msls).

14 D-III SSBN x 16 SS-N-18 (224 msls).

4 D-II SSBN x 16 SS-N-8 (64 msls).

18 D-I SSBN x 12 SS-N-8 (216 msls).

1 Y-II SSBN x 12 SS-N-17 (12 msls).

23 Y-I SSBN x 16 SS-N-6 (368 msls).

1 H-III SSBN x 6 SS-N-8 (6 msls) } [msls (18)]

2 H-II SSBN x 3 SS-N-5 (6 msls) } but not subs

1 G-III SSB x 6 SS-N-8 (6 msls) } within SALT]

13 G-II SSB x 3 SS-N-5 (39 msls non-SALT).

(b) Strategic Rocket Forces (SRF): 415,000.† 6 operational rocket armies, org in divs, regts, bns and bty; 1 msl launcher per bty; 300 launch control HQ, 3 msl test centres.

ICBM: 1,398.‡

520 SS-11 Sego (at 9 fields, some in SS-19 silos; may be converted to SS-19).§

60 SS-13 Savage (at 1 field).

150 SS-17 (at 2 fields; mod 1, 4 MIRV; mod 3, 4 MRV, being deployed; in mod SS-11 silos.)

308 SS-18 (at 6 fields, upgrading to mod 4, 10 MIRV, in progress).

360 SS-19 (at 4 fields; mostly mod 3, 6 MIRV; replacing some SS-11).

IRBM/MRBM: some 596 deployed (371 in western rest in central and eastern USSR).

378 SS-20 mobile IRBM; (6 fields: 135 launchers in Far East (being increased), 81 in Central Asia, 162 west of Urals (being increased)). 2 more sites, 18 launchers may be operational shortly.||

224 SS-4 Sandal MRBM in western USSR (being retired).

(c) Strategic elms. Air Armies of the Soviet Union (Naval, tactical elms see below): 100,000. Some 752 combat ac; some 500 to 550 in western USSR. 5 Armies.

Long-range bombers: 143.

100 Tu-95 Bear B/C, 43 Mya-4 Bison (some 70 Bear B have AS-3 or AS-4 ASM). (Bear H for ALCM reported in production.)

Medium-range bombers: 475.¶

220 Tu-16 Badger G, 125 Tu-22 Blinder A/B, 130 Tu-26 Backfire B (AS-4 ASM).

Recce: 34.

4 Tu-95 Bear E, 15 Tu-16 Badger F, 15 Tu-22 Blinder C. (A long-range high-altitude ac, 'Ram-M', reported under development.)

ECM: 100 Tu-16 Badger H/J/K.

Tankers: 30 Mya-4 Bison A, 20 Tu-16 Badger.

ASM: AS-3 Kangaroo, AS-4 Kitchen, AS-5 Kelt, AS-6 Kingfish.

DEFENSIVE:

National Air Defence Troops (Voyska-PVO) (incl Air Defence Troops of the Ground Forces (AA arty), but not their SAM and radar tps): 370,000.**

5 Air Defence District Commands, numerous AD regts; 14 specialist schools.

ABM: 32 ABM-1B Galosh; range over 320 km, warheads nuclear, presumably MT range. 8 sites in 4 complexes around Moscow. New ABM being emplaced.

Aircraft: Some 4,000; in regts and indep sqns.

Interceptors (some will be assigned as air superiority fighters in spt of ground tps): 480 MiG-21 Fishbed J/K/L; some 2,100 MiG-23 Flogger B/G (6 AAM); 380 MiG-25 Foxbat A/E (A uprating to E) (4 AAM); some 12 MiG-29 Fulcrum (6 AA-X-10); 50+ MiG-31 Foxhound A (8 AA-9 AAM); 680 Su-15 Flagon E/F (2 AAM); 120 Tu-28P Fiddler B (4 AAM); 160 Yak-28P Firebar (2 AAM).

* Excl Border Guard, internal security, railroad and construction troops, totalling some 1,135,000, but incl some 1,500,000 comd and general spt tps not otherwise listed.

† The SRF and Voyska-PVO, separate services, have their own manpower.

‡ Figures may fluctuate slightly during conversion.

§ There are 360 SS-19 silos. SS-11, SS-19 have variable range capability, enabling them to be used for theatre support.

|| Usually in some 42 complexes with an average of 9 launchers. A reload capacity has been reported.

¶ Staging and dispersal points in the Arctic could significantly increase aircraft ranges.

** The SRF and Voyska-PVO, separate services, have their own manpower.

Airborne Warning and Control Aircraft: 10 modified Tu-126 *Moss*. (4 Il-76 *Mainstay* reported in production to replace *Moss*.)

A.A.M: AA-2 *Atoll*, AA-3 *Anab*, AA-5 *Ash*, AA-6 *Acrid*, AA-7 *Apex*, AA-8 *Aphid*, AA-9, AA-X-10.

A.A artillery: 9,000 23mm, 57mm, 85mm, 100mm, 130mm towed, ZSU-23-4, ZSU-30-6 (trials) and ZSU-57-2 SP guns.

S.A.M: Some 9,600 launchers (some 13,000 launcher rails) in some 1,000 fixed sites: 3,000 SA-1 *Guild* (in reserve, replaced by SA-10); SA-2 *Guideline* (some 350 sites, SA-10 may be replacing); SA-3 *Goa* (2 or 4 launcher rails, over 300 sites, low- to med-altitude intercept); SA-5 *Gammon* (2,000 launchers, over 100 complexes, long-range intercept); some 35 quad SA-10 in strategic role. Field mobile systems 4,100: 1,400 SA-4 *Ganef* (twin), 900 SA-6 *Gainful* (triple), SA-7 *Grail* (man-portable), 600 SA-8 *Gecko* (2 x twin/2 x triple), 650 SA-9 *Gaskin* (2 x twin), SA-11, SA-X-12, 550 SA-13 (2 x twin replacing SA-9). (Two ABM types - 'SH-04' exo-atmospheric, 'SH-08' supersonic endoatmospheric - reported.)

Warning Systems: Over 7,000, incl satellites and EW and ground control intercept radars.

(a) Satellites: 9 with highly elliptical semi-synchronous orbits (anti-ICBM SLBM launch detection capability); 9 EW, 6 ELINT, 2-4 recce, 1 launch detection.

(b) Over-The-Horizon (Backscatter) radars: 3: 2 near Minsk and Nikolayev (Caucasus), targeted on the US and polar areas; 1 near Nikolayev-na-Amur, on China.

(c) Long-range early-warning radars:

(i) ABM-associated:

(1) 5 phased-array systems located at Lyaki (Europe); Abalakova, Saryshagan, Pechora (Central Asia); Mishelevka (Far East). 2 other sites reported.

(2) 11 radars, mostly *House* (Hen)-series; range 6,000 km, 6 locations covering approaches from the west and south-west, north-east and south-east and, partially, south. Linked to intermediate-range *Dog House* (range 2,800 km) and *Cat House* and *Try Add* missile control radar.

(ii) AD-associated:

Flat Twin/Pawn Shop (ABM-3/SH-04/-08); *Tall King*, range 600 km (SA-5); P-12 *Spoon Rest*, 275 km (SA-2).

(d) Search, surveillance/target-acquisition radars: (7,000; 1,200 sites):

Long Track (SA-4, SA-6); P-15 *Flat Face/Squat Eye*, 200 km (SA-3); P-50 *Back Net*, 320 km (SA-5).

(e) Height finder radars:

Thin Skin (SA-4, SA-6); *Cake-series* (e.g.,

Rock Cake, 200 km; *Side Net*, 180 km (SA-5).

(f) Missile control radars:

Yo-Yo (SA-1); *Fan Song A to E* (SA-2); *Low Blow* (SA-3); *Pat Hand* (SA-4); *Square Pair* (SA-5); *Straight Flush* (SA-6); *Land Roll* (SA-8).

(g) A.A artillery fire control radars:

Gun Dish (ZSU-23-4); *Fire Can* (57mm, 85mm); *Whiff*; *Fire Wheel*; *Flap Wheel* (57mm, 130mm).

Plus civilian air control equipment.

Civil Defence: (150,000; 16,000,000 on mobilization). Nationwide programme under Defence Ministry down to city/rural/industrial level includes some 75 comd posts within 120 km of Moscow: 1,500 hardened deep shelters, accommodation for at least 175,000 officials, and local urban hardened shelters for essential workforce and some of the general population.

Army: 1,840,000 (perhaps 1,400,000 conscripts). Five Theatre HQ.

50 tk divs (Type: 3 tk, 1 motor rifle, 1 arty, 1 SAM AA regts, 1 SSM, 1 MRL bns, spt units).

136 motor rifle divs (Type: 3 motor rifle, 1 tk, 1 arty, 1 SAM regts, 1 SSM, 1 ATK, 1 MRL bns, spt units).

7 AB divs (each 3 para, 1 arty regts, 1 AA bn).

Some 8 air assault bdes (each 3 rifle bns, mor, SAM, ATK, spt tps).

Front and Army tps:

15 arty divs (Type (Army): 4 bdes of 4 bns of 18 guns).

Tk, arty, SSM, ATK, AD (SAM and arty), engr bdes, sigs, electronic warfare, hy tk tpt, NBC defence, CW regts, bns, spt services.

Special forces (*Spetsnaz*): 16 bdes, 3 regts.

Tanks: Some 51,000: some 35,000 T-54/-55/-62, some 8,000 T-64, 7,700 T-72/-80 MBT (most fitted for deep fording); PT-76 lt.

AFV: 70,000: 7,500 recce, incl BRDM-2, GT-S, BMP variants, many with ATGW; ACRV -1/-2/-3 comd/recce; 23,000 BMP-1/-2, some 2,800 BMD (AB) MICV; BTR-50P/-60P/-70/-152 (-70, BMP-2 replacing -50/-60), GT-T, MT-LB (with SA-13, -19 SAM) APC.

Arty: some 34,000 guns and how, incl M-1966 76mm, D-74 122mm, M-46 130mm, M-1976 152mm, S-23 180mm towed, M-1981 (2-S5) 152mm, M-1975 203mm SP guns; M-1937/D-20 towed, M-1973 (2-S3) 152mm SP gun/how; M-1938/D-30 122mm, M-1938/D-1 152mm towed, M-1974 (2-S1) 122mm, M-1981 152mm and M-1975 203mm SP how; 14,000 82mm, 120mm, 160mm and 240mm (incl M-1975 SP) mor; 6,000 M-1944 (BM-21)/M-1972 (RM-70) 40-tube, M-1975 12-tube, M-1976 36-tube 122mm, BM-14

-16 -17 16 17-tube, RPU-14 16-tube 140mm, M-1977 (BM-27) 16-tube 220mm, BM-24 12-tube and BM-27 16-tube 240mm MRL.

I/A 40mm RPG-7, 73mm RPG-16/-18 RL; 73mm SPG-9 RCL; 7,000 76mm, D-44 SD-44 85mm, T-12 -12A M-55 100mm towed and ASU-57 -85 SP ATK guns; AT-2 *Swatter*, AT-3 *Sagger*, AT-4 *Spigot*, AT-5 *Spandrel*, AT-6 *Spiral* ATGW.

ID: 11,500 ZU-23 23mm, 37mm, S-60 57mm, KS-19 100mm towed, ZSU-23-4 23mm, 30mm, ZSU-57-2 57mm SP AA, some 28,000 SA-4 -6 -7/-8/-9/-11/-13 (*Gopher*)/-14 SAM.

SSM (nuclear-capable): about 1,400 launchers (units organic to formations), incl some 700 FROG SS-21, 570 Scud SS-23, 120 SS-12/SS-22

Hel: some 4,100; 800 Mi-1/-2 *Hare/Hoplite* (li recce, ATGW, utility), 440 Mi-6 *Hook* (hy tpt), 1,500 Mi-8 *Hip C*, 300 Mi-17 *Hip H* (assault tpt), D, G (comms), E (armed/ATGW), J and K (HC), 1,100 Mi-24 *Hind* (armed), 15 Mi-26 *Halo A* (hy tpt), 10 Mi-28 *Havoc* (armed). Being org as indep of Tac Air.

DEPLOYMENT:

Western Theatre: 3 main operational sub-theatres (TYD): North-western, Western, Southwestern. (See also Arctic and Atlantic Maritime Commands.)

Central and Eastern Europe (\$65,000): 30 divs (16 tk, 14 motor rifle), plus 1 arty, 10,500 MBT.* East Germany (380,000): 1 Gp, 5 Army HQ; 10 tk, 9 motor rifle, plus 1 arty divs; 1 air assault, Scud/SS-23 bdes; 19 FROG/SS-21 bns; 5 hel regts. Poland (40,000): 1 Gp, 1 Army HQ; 2 tk divs. Hungary (65,000): 1 Gp, 1 Army HQ; 2 tk, 2 motor rifle divs. Czechoslovakia (80,000): 1 Gp, 2 Army HQ; 2 tk, 3 motor rifle divs; 1 air assault bn; 1 SS-12/-22, 2 Scud/SS-23, 1 arty bdes. 1 hel regt in each ground army.

European USSR Military Districts (MD): 65 divs (23 tk, 37 motor rifle, 5 AB), plus 8 arty. Baltic: 3 tk, 6 motor rifle, 2 AB, plus 2 arty. Belorussian: 10 tk, 4 motor rifle, 1 AB, plus 1 arty. Carpathian: 4 tk, 8 motor rifle, plus 2 arty. Kiev: 6 tk, 4 motor rifle, plus 1 arty. Leningrad: 8 motor rifle, 1 AB, plus 1 arty. Odessa: 7 motor rifle, 1 AB, plus 1 arty.

Central Strategic Reserve: 16 divs (3 tk, 12 motor rifle, 1 AB). Moscow: 2 tk, 5 motor rifle, 1 AB. Ural: 1 tk, 4 motor rifle. Volga: 3 motor rifle.

Southern Theatre: 30 divs (1 tk, 28 motor rifle, 1 AB), plus 2 arty. N. Caucasus: 1 tk, 7 motor rifle, plus 1 arty. Trans-Caucasus: 12 motor rifle, plus 1 arty. Turkestan: 6 motor rifle. Afghanistan: 3 motor rifle, 1 AB divs (see *Forces Abroad*, below). Some hel regts.

Far Eastern Theatre (see also Pacific Fleet): 52

divs (7 tk, 45 motor rifle), plus 4 arty. Central Asian: 1 tk, 6 motor rifle, plus 1 arty. Under High Command Far East (HQ Irkutsk): Siberian, 6 motor rifle, plus 1 arty; Trans-baykal, 2 tk, 8 motor rifle, plus 1 arty; Far Eastern, 2 tk, 22 motor rifle, plus 1 arty; Mongolia, 2 tk, 3 motor rifle (see *Forces Abroad* below).

Soviet divs have 3 categories of combat readiness: Cat. 1, combat ready, 75-100% strength, with complete eqpt; Cat. 2, 50-75% combat strength, complete with fighting vehicles; Cat. 3, below 50% strength, fighting vehicles possibly complete, but older models. The system may now be changing, with some units in a formation being at full strength, others at cadre only.

The 30 divs and 1 arty div in Eastern Europe and all AB divs are Cat. 1. About 35% of divs in European USSR and the Far East are in Cat. 1 or 2. Most in Central and Southern USSR are likely to be Cat. 3. Tk divs in Eastern Europe have up to 335 MBT, motor rifle divs up to 266, but elsewhere holdings may be lower.

Navy: 490,000 (some 70% conscripts), incl Naval Air Force, Naval Infantry, and Coastal Artillery and Rocket Troops; 278 cruise-missile and attack subs, (some 123 nuclear (incl 9 mod Y-I), 154 diesel), 293 principal, 797 minor surface combatants. There are 15 auxiliary subs, 331 auxiliary ships and AGI. A further 96 attack subs and 30 principal surface combatants are in reserve.

Subs, cruise-missile: 67:

49 nuclear (SSGN): 2 O-class (x 24 SS-N-19 SLCM); 1 P (10 msls; ?SS-N-9 *Siren*); 11 C-I (x 8 SS-N-7), 6 C-II (x 8 SS-N-9); 29 E-II (x 8 SS-N-3a; some 7 may carry 8 SS-N-12). (SS-NX-21 nuclear SLCM under development.)

18 diesel (SSG): 16 J-class (x 4 SS-N-3a), 2 W-Long Bin (x 4 SS-N-3).

Subs, attack: 201 (211 if all mod Y-I were SSN):

Some 65 nuclear (SSN): 6 A, 12 N, 16 V-I, 7 V-II, 17 V-III, 5 E-I, 1 M and 1 S on trials. (10 Y-I SSBN have been/are being/may be converted to other roles incl SSN). Apart from the older N and E, most SSN probably carry SS-N-16 and/or SS-N-15 nuclear ASW weapons.

136 diesel (ss): 4 K, 18 T, 50 F, 10 R, 4 Z, 50 W.

Subs, other roles: 3 G-I comms conversion, 4 B trg, 2 I rescue; 1 U and one other SSN research; 4 H (ex-SSBN) role unknown.

* Excl tks in reserve (replaced by new ones but not withdrawn).

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Surface Ships:

293 principal surface combatants:

- 3 Kiev carriers (37,000 tons) (1 more trials) with 4 x 2 SS-N-12 *Sandbox* SSM, 2 x 2 SA-N-3 and 2 x 2 SA-N-4 SAM, 1 x 2 SUW-N-1 ASW, 14 Yak-36 *Forger* A/B VTOL ac, 19 Ka-25 *Hormone* A/B hel.
- 2 *Moskva* ASW hel carriers (17,000 tons) with 2 x 2 SA-N-3 SAM, 1 x 2 SUW-N-1 or FRAS-1 ASW; 18 *Hormone* A hel.
- 2 Kirov nuclear-powered GW cruisers (CGN) with 20 SS-N-19 SSM, 12 SA-N-6, 1 x 2 SA-N-4 SAM, 1 x 2 SS-N-14 *Silex* ASW, 2-4 Ka-25 *Hormone* B or Ka-27 *Helix* B hel.
- 1 *Slava* (ex-'Black-Com 1', ex-'Krasina') GW SSM ASW cruiser with 8 x 2 SS-N-12 *Sandbox* SSM, 8 SA-N-6 SAM, 1 Ka-27 hel.
- 17 GW ASW cruisers with Ka-25 hel: 7 *Kara* with 2 x 4 SS-N-14 ASW, 2 x 2 SA-N-3, 2 x 2 SA-N-4 SAM (1 trials with 1 x 6 SA-N-6 replacing twin SA-N-3, trials); 10 *Kresta-II* with 2 x 4 SS-N-14, 2 x 2 SA-N-3.
- 8 GW cruisers: 4 *Kresta-I* with 2 x 2 SS-N-3b SSM, 2 x 2 SA-N-1 SAM, 1 *Hormone* B hel; 4 *Kynda* with 2 x 4 SS-N-3b, 1 x 2 SA-N-1.
- 8 *Sverdlov* cruisers (2 command with 1 x 2 SA-N-4, 1 Ka-25 hel).
- 45 GW destroyers (DDG): 9 SSM SAM (3 *Sovremenny* with 2 x 4 SS-N-22 SSM, 2 SA-N-7 SAM, 1 *Helix* B hel; 6 mod *Kashin* with 4 SS-N-2C, 2 x 2 SA-N-1); 4 ASW SAM *Udaloy* with 2 x 4 SS-N-14, 2 Ka-27 *Helix* A hel; 3 mod *Kildin* SSM with 4 SS-N-2C; 29 SAM (13 *Kashin*; 12 with 4 x 2 SA-N-1, 1 with SA-N-7 (trials); 8 *Kanin* with 2 x 2 SA-N-1; 8 SAM *Kotlin* with 1 x 2 SA-N-1).
- 23 gun destroyers (DD): 12 *Kotlin*, 10 *Skory*, 1 *Kildin*.
- 32 *Krivak-I/-II* GW frigates (FFG): with 1 x 4 SS-N-14, 2 x 2 SA-N-4.
- 152 gun frigates (FF): 1 *Koni*, 48 *Grisha-I/-III*, (also with 1 x 2 SA-N-4 SAM), 8 *Grisha-II* (KGB), 18 *Mirka I/II*, 42 *Petya*, 35 *Riga*.
- 797 minor surface combatants:
- 30 GW corvettes: 1 *Tarantul II* with 2 x 2 SS-N-22 (trials); 6 *Tarantul I/II* with 2 x 2 SS-N-2c; 23 *Nanuchka I/III* with 2 x 3 SS-N-9 (*Siren*), 1 x 2 SA-N-4.
- 117 FAC(G): 17 hydrofoil (1 *Sarancha* with 2 x 2 SS-N-9, 1 x 2 SA-N-4; 16 *Matka* with 2 SS-N-2c); 65 *Osa-I*, 35 *Osa-II* with 4 SS-N-2.
- 220 FAC(T): 12 *Pauk* also with 1 x 4 SA-N-5, 58 *Pot*, 12 *Shershen*, 32 *Turya*, 4 *Muravey* hydrofoils, 100 *Stenka* (KGB); Trials: 1 *Slepen*, 1 *Babochka*.
- 73 patrol craft: 8 *Susanin* icebreakers (KGB; 6 armed), 25 SO-1 (some KGB), 14 T-43 (some KGB), 18 T-58 (some KGB); 2 T-58, 6

T-43/PFR radar pickets.

3 *Alesha* minelayers.115 ocean minesweepers: 35 *Natya I-II*, 45 *Yurka*, 35 T-43.175 coastal minesweepers: 2 *Andryusha*, 48 *Sonya*, 3 *Zhenya*, 5 *Sasha*, 72 *Vanya*, 45 *Evgenya*.64 minesweeping boats: 10 *Ilyusha*, 4 *Olya*, 20 TR-40, 30 K-8.

78 amph ships:

- 2 *Ivan Rogov* LPD with 1 x 2 SA-N-4, 4 x 4 SA-N-5, 2-3 *Helix* A hel; 14 *Alligator* (some with 3 x 2, 1 with 2 x 2 SA-N-5), 17 *Ropucha* LST (some with 4 x 4 SA-N-5); 45 *Polnocny* LSM (some with 2 x or 4 x 4 SA-N-5).

109 amph craft:

- 45 LCU: 20 *Vydra*, 15 *SMB-I*, 10 *Ondatra*, 64 hovercraft: 15 *Aist*, 2 *Utenok*, 17 *Lebed*, 30 *Gus*.

269 principal auxiliary ships:

- 28 replenishment/tankers, 31 spt tankers, 12 msl spt, 10 supply, 80 cargo, 20 submarine tender, 36 repair, 2 hospital, 20 submarine rescue, 20 salvage rescue, 10 trg ships. Merchant fleet - 1,700 ocean-going, 700 river ships, incl 61 ramp-fitted roll-on roll-off (RoRo) - could augment these.

- 62 intelligence collection vessels (AGI), 134 naval, 350 civilian oceanographic, fishery, space-associated and hydrographic research vessels.

Additional ships in reserve:

- 10 F, 6 Z, 80 W subs; 4 *Sverdlov* cruisers (1 with 1 x 2 SA-N-2 SAM); 6 *Kotlin*, 10 *Skory* destroyers; 10 *Riga* frigates; 10 T-43 MCM; 1 G-1 SSB in SLBM research role.

- (On order: 3-4 *Typhoon*, *D-III* SSBN; *O* SSGN; *M*, *S* SSN; *K*, *T* SS; 1 75,000-ton nuclear, 1 Kiev carriers; 2 Kirov CGN; 2 *Slava* CG; 5 *Sovremenny*, 5 *Udaloy* DDG; *Krivak*, *Grisha* III frigates; *Tarantul*, *Nanuchka* GW corvettes; *Muravey*, *Stenka* FAC(T); *Pauk* FAC; *Sonya* coastal MCM; *Ropucha* LST; *Aist*, *Lebed*, *Utenok* hovercraft).

- NAVAL AIR FORCE: (70,000); some 839 combat ac, some 265 combat hel.

- Four Fleet Air Forces: org in air divs, each with 2-3 regts, each with HQ elms and 2 sqns of some 10 ac each; recce, ASW, tpt/utility org in indep regts or sqns.

- Strike bhrs: some 105 Tu-26 *Backfire* B with AS-4 ASM.

- Med bhrs: some 290: 190 Tu-16 *Badger* C, 64 G/G-mod with AS-5 ASM, some 35 Tu-22 *Blinder* B.

- FGA: 120: 55 Yak-36 *Forger* A/B VTOL, 65 Su-17 *Fitter* C.

- ASW: some 190 ac: some 50 Tu-142 *Bear* F, 50

Il-38 *May*, 90 *Be-12 Mail*. Some 230 hel: 90 *Mi-14 Haze*, 120 *Ka-25 Hormone A*, 20 *Ka-27 Helix A*, *Ka-32 Helix B*.
MR ECM: some 135 ac: some 80 *Tu-16 Badger* *D E F H J/K*, 45 *Tu-95 Bear D*, 10 *An-12 Cub B ac*; 25 *Ka-25 Hormone B hel*.
MCV: some 10 *Mi-14 Haze B hel*.
Linkers: 75 *Tu-16 Badger*.
Ipt trg ac: 350 ac and hel, incl *An-12 Cub A*, *An-26 Curl*, *Il-14 Crate*, *Il-18 Coot*, *An-24 Coke*, *Il-76 Classic ac*; *Mi-6/-8 Hook/Hip hel*.
ISM: *AS-2 Kipper*, *AS-4 Kitchen*, *AS-5 Kelt*, *AS-6 Kingfish*, *AS-7 Kerry*.

NAVAL INFANTRY (Marines): (16,000).
 1 div HQ.
 5 naval inf bdes/regts (each 2,500; 4 inf, 1 tk bn, 1 sp arty).
 4 naval Special Forces (*Spetsnaz*) bdes (one in each Fleet), 20 indep units.
T-54 -55 MBT; *PT-76* lt tks; *BRDM-2* recce; *BTR-60P/PA/PB APC*; *M-1974* 122mm SP how; 82mm, 120mm mor; *BM-14* 17-tube 140mm MRL; *AT-3/-5 ATGW*; *ZSU-23-4* SP AA guns; *SA-7/-9/-13 SAM*.

COASTAL ARTILLERY AND ROCKET TROOPS: (14,000).
 1 coastal arty div.
 Hy coastal guns incl *SM-4-1* 130mm, perhaps 100 *SS-C-1b Sepal* ssm (similar to *SS-N-3*) to protect approaches to naval bases and major ports.

DEPLOYMENT AND BASES (average strengths, excluding units in reserve):
 Arctic Command:

Northern Fleet: 42 *SSB BN* incl 2 *Typhoon*, 21 *D*, 15 *Y-class*, 138 other subs, 80 principal (incl 1 carrier), 120 minor surface combatants, 15 amph, 85 principal auxiliary ships, some 310 combat ac/hel incl 100 bdrs and frs, 1 naval inf bde. Severomorsk (HQ), Motovskij Gulf, Gremikha, Polyarny, Archangelsk. Some 10 subs are normally deployed in the Mediterranean (see below).

Atlantic Command:

Baltic Fleet: 32 subs (incl 6 *G-II* *SSB*), 45 principal, 260 minor surface combatants, 22 amph, 35 principal auxiliaries, some 210 combat ac/hel incl some 130 bdrs and frs, 6 ssm bns, 1 naval inf bde. Baltiysk (HQ), Kronshtadt, Paldiski, Liepaja, Klaipeda, Riga.

Black Sea Fleet (incl Caspian Flotilla): 24 subs, 80 principal (incl 2 ASW hel carriers), some 210 minor surface combatants, 23 amph, 55 principal auxiliaries, some 250 combat ac/hel incl 80 bombers, 1 naval inf bde. Sevastopol (HQ), Balaclava, Poti, Odessa.

Mediterranean sqn: with 8-10 subs, 12-14 surface combatants incl 2 amph, 10-12 auxiliaries, 4-6 AGI. All assigned from other fleets).

Pacific Fleet: 31 *SSB BN* (incl 15 *D*, 9 *Y*, 6 *G-II*), 102 other subs, 88 principal (incl 2 carriers), 220 minor combatants, 18 amph incl 2 *Rogov*, 84 principal auxiliaries, 340 combat ac/hel incl 120 bombers, 1 naval inf div (2 regts). Vladivostok (HQ), Petropavlovsk, Sovyetskaya Gavan. Detachments from this fleet (average 2-3 subs, 8 surface combatants, 2 amph, 12 spt ships) are normally deployed in the Indian Ocean and South China Sea: facilities also in Vietnam (Cam Ranh Bay), South Yemen (Aden, Socotra) and Ethiopia (Dahlak Is).

Air Force: 400,000.

Air Armies of the Soviet Union: Strategic, AD, see above. 16 MD Air Forces, 4 Air Armies. Continuing reorganization makes eqpt estimates tentative.

Tactical: (315,000); some 3,260 combat ac. 20 air commands of varying strengths, mostly org in divs of 3 sqns, totalling 45 ac: the regts' roles may differ within the div.
FGA: some 2,600: some 160 *MiG-21 Fishbed L*, 730 *MiG-27 Flogger D J*, 130 *Su-7 Fitter A*, 850 *Su-17 Fitter D/H*, 630 *Su-24 Fencer*, 75 *Su-25 Frogfoot*.

Fighters: A proportion of the 4,000 interceptors listed in Strategic AD will have a battlefield air superiority role.

Recce: 620: 170 *MiG-25 Foxbat B/D*, 70 *MiG-21 Fishbed H*, 200 *Yak-28 Brewer D*, 180 *Su-17 Fitter H*.

ECM: 40 *Yak-28 Brewer E*.

Trainers: Some 1,000 ac; 700 hel.

AAM: *AA-2 Atoll*, *AA-7 Apex*, *AA-8 Aphid*, *AA-9*.

ASM: *AS-7 Kerry*, *AS-10*; hel-borne: *AT-2 Swatter*, *AT-6 Spiral*.

Military Transport Aviation (VTA): (45,000); some 750 ac. Org in regts. Incl *An-2 Colt*, *An-8 Camp*, 320 *An-12 Cub*, *An-24 Coke*, *An-26 Curl*, *Il-14 Crate*, 225 *Il-76 Candid M/MD* (replacing *Cub*), 55 *An-22 Cock hy*. (*An-400 Condor* under development).

Some 200 *Cub* and *Candid*, and 1,300 med- and long-range passenger ac of the civilian *Aeroflot* fleet and the 1,250 tpts of the other Services could augment VTA airlift.

DEPLOYMENT:

1 HQ, 4 Tactical Forces (2,000 ac) in Eastern Europe, 1 in each of 16 MD in USSR; total Far East perhaps 2,700 ac incl 440 bombers, 1,500 fighters/attack ac.

RESERVES:

Soviet male citizens have a Reserve obligation to 50. Total Reserve could be 25,000,000, of which some 5,300,000 will have served within the last five years: Strategic Rocket Forces, 520,000; Army, 3,500,000; Navy, 840,000; Air Force, 400,000. Reports suggest that the remaining 19,700,000 would provide sufficient forces to mobilize an equivalent to the peacetime force structure which, though equipped with stored obsolete equipment, would at least double the size of the ground forces.

Forces Abroad:

Afghanistan: 115,000 (some 10,000 MVD, KGB.)

Army: 1 HQ, 3 motor rifle, 1 AB divs, 1 air assault bde.

Air: equivalent possibly 2 air divs: (4 ac, 6 hel regts: 180 ac, 270 hel); VTA and *Aeroflot* tpt ac from USSR in spt.

Mongolia: 75,000: 2 tank, 3 motor rifle divs.

Vietnam: (7,000) averages: 4 subs, 2-4 combat vessels, 10 auxiliaries, 10 MR or ASW ac, AA SAM, electronic monitoring station.

Other: Algeria 1,000; Angola 500; Congo 100;

Cuba 4,600 (1 bde, advisers, technicians, plus 3,000 civilians); Ethiopia 1,700; India 200; Iraq 600; Laos 500; Libya 1,800; Mali 200; Mozambique 300; Nicaragua 100; Peru 100; Syria 7,000; Vietnam 2,500; N. Yemen 500; S. Yemen 1,500; Africa (rest) 900.

Para-Military Forces: 675,000.

KGB 225,000: border tps, with tks, SP guns, AFV, ac and ships (1 *Purga* frigate, 90 *Stenka* FAC(P), 12 *Pchela* hydrofoils, 30 *Zhuk*, some SO-1, T-58, T-43 patrol craft); Kremlin Guard; Special Guard; Special Sigs unit (40,000 tps).

MVD 300,000: security tps; some 30 divs with tks and AFV. By law part of armed forces of USSR.

Civil Defence 150,000 (permanent staff only).

Part-time military training organization (DOSAAF): claimed active membership 80 million (of which 5 million are instructors and activists) in 330,000+ units; flight training, shooting, parachuting and pre-military training of those aged 15 and over in schools, colleges and workers' centres. Para-military training also in Young Pioneers (ages 8-15).

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The Rationale for the Development of Soviet Seapower

by Michael McGwire

My task is to explain the rationale for the development of Soviet seapower; to focus on the why of current developments rather than the what. This distinction is important since it leads one to emphasize a different range of factors, each relevant to different levels of threat analysis.

The what of Soviet seapower provides the basis for contingency planning, where we focus on enemy capabilities, and our own requirements, and the aim is to identify the most dangerous course of Soviet action, rather than the most likely. This can be labeled the military-tactical level of analysis.

By contrast, analysis at the politico-strategic level is primarily concerned to identify the most likely courses of Soviet action. This means we focus primarily on the why of Soviet policy and, by identifying the rationale behind past developments, we gain some understanding of the objectives and the constraints which will shape policy in the future. This requires us to look at Soviet interests, and while it's hard to be certain of what they see as being in their interests, it is much easier to identify what is against their interests. We also have to consider intentions which, given continuity of government, tend to be remarkably stable at the politico-strategic level. But probably the most important step is to assess Soviet capabilities in terms of the requirements they are designed to meet, and decide whether there is a surplus or shortfall of capabilities over these requirements.

A major difference between the two levels of analysis is the stance of the analyst. At the military-tactical contingency-planning level, he is looking at the situation primarily from the West's point of view and focusing on Western threat perceptions and vulnerabilities. At the politico-strategic level, the analyst is looking at it from the Russians' point of view and focusing on Soviet threat perceptions and vulnerabilities, before considering the range of opportunities that are open to them.

Obviously these different viewpoints yield very different pictures, and the level of analysis explains much of the apparent divergence of views concerning the Soviet threat. Both levels of analysis are essential, since they provide the two components of the threat equation: the type of enemy action which could take place; and the likelihood that such action will take place. The operational commander is required to focus on the first component, but higher level policymaking in peacetime requires the judicious balancing of both. Most of us are already well briefed on the first component; I am to give you my understanding of the second.

I am going to focus on the naval element of seapower, although

"Where the West thought in terms of credibility, argued about the arcane merits of counterforce and counter-value, or worried about stabilizing and destabilizing developments, the Soviets focused on achieving victory in war."

It follows then that, for the Soviets, the Norwegian Sea "had moved from being nice-to-have to need-to-have, with all that implies. . . ." The view opposite shows the Soviet antisubmarine cruiser Kiev approaching the Shetland-Faeroes gap. The trailing ship is the frigate HMS Danae.

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Michael McGwire

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towards the end I will touch briefly on other aspects of Soviet ocean policy. I will concentrate mainly on the last nineteen years, because contemporary naval policy, and indeed Soviet defense policy as a whole, stems from 1961, that is, the year before Cuba. But to understand this policy we must reach much further back in time, not least because most of the warships now in service stem from design decisions taken in the fifties.

For evidence, I draw on what the Soviets say and what they do. But I pay particular attention to their warship building programs, because these reflect high level decisions about the allocation of scarce resources. Detailed analysis of these programs allows one to identify the timing and the substance of past policy decisions and of subsequent shifts in policy, reflecting changes in Soviet perceptions of the threat, and the evolution of their naval requirement.

Let me start by noting that for the last 200 years or so, Russia's navy has generally been the third or fourth largest in the world, although its effectiveness fluctuated widely. Russia used naval forces in the eighteenth century to help the army gain or increase her holdings on the Baltic and Black Sea coasts and, four times between 1768 and 1827, she deployed sizeable squadrons to the Mediterranean for 1 year or more. For three of these deployments ships were drawn from the Baltic Fleet and were used in opera-

tions against the southern side of the Black Sea exits during the wars with Turkey.

But increasingly thereafter Russia found herself confronting predominantly maritime powers. In the Black Sea, Britain used her naval strength to prevent Russian gains at the expense of the failing Ottoman Empire, in the company of France. Britain intervened directly in what we call the Crimean War, extending her naval operations against Russia to the Baltic, White Sea, and Pacific, and the subsequent peace treaty forbade Russia a Black Sea Fleet. Twenty years later in the eighth Russo-Turkish War, British pressure ensured that Russia did not gain control of the Straits. In the Far East, Russo-Japanese rivalry culminated in the disastrous war of 1904-5, and the loss of two Russian fleets. In consequence, Russia's naval policy was increasingly dominated by the requirement to defend four widely separated fleet areas against maritime powers who could concentrate their forces at will.

It is therefore wrong to suggest that Russia has only recently awakened to the significance of sea-power. She used it in the past to her own advantage, but more often has seen its long arm used against her. Over the years she committed very substantial resources to naval construction, and the major warship building program, which was initiated after the Second World War, was the fourth attempt in 65 years to build up a strong Russian fleet: 1880, 1910, 1928, and 1945. But national strategy involves setting priorities and balancing competing claims for scarce resources. Russia was predominately a land power; the only threats to her territorial existence had come by land; the army was the basis of security at home, and of influence beyond her borders.

Substantial naval forces were indeed required to defend against assault from the sea, and to thwart attempts by maritime powers to dictate the outcome of events in areas adjoining Russia. But these forces were seen as an expensive necessity, rather than as a preferred instrument of overseas policy. One of the questions I will address at the end is the extent to which this attitude persists today.

These perceptions of Russia's naval requirements were reinforced during the interwar years. Between 1918 and 1921, Western navies provided vital support to the forces of counterrevolution. And then a naval arms race built up during the thirties. With traditional enmities now reinforced by a deep ideological cleavage, the Soviet Union was a beleaguered state and had to take account of Japan in the Pacific, the Germans in the Baltic, and the possibility of the Italians joining the Turks in the Black Sea; plus, of course, the worldwide capabilities of the

*The detailed analyses which underlie this article can be found in "Naval Power and Soviet Global Strategy," *International Security*, Spring 1979, and in the various chapters of *Soviet Naval Developments* (1973), *Soviet Naval Policy* (1975), and *Soviet Naval Influence* (1977), all published by Praeger and edited by the author (with others). The references in those works give some indication of the considerable debt the author owes to other analysts in this field.

American, British, and French navies.

During the thirties the Soviet Union devoted substantial resources both to warship construction and improving her naval capabilities: by linking the three western areas by inland waterway; by upgrading existing shipyards; and by building major new ones safe from coastal assault, in the North, in the Pacific and on the Volga. Throughout most of the thirties the Soviets only had the industrial capacity to build smaller units, and they concentrated mainly on submarines, torpedo boats, and naval aircraft. But by the end of the Third Five Year Plan in 1943 they planned to have a navy of 19 battleships and battlecruisers, 20 cruisers, 160 destroyers, over 1,500 naval aircraft, and no less than 340 submarines.

This sounds a substantial force, but in fact it would have been a fleet of short-legged ships sailed by inexperienced seamen under the command of novice admirals. It would have lacked carriers, radar, sonar, and much else. And, of course, this force had to be shared among four fleets. In June 1941 the Soviets had the most numerous submarine force in the world, but the great majority of these units had been designed to defend the home fleet areas against naval incursions.

The Second World War confirmed Russia's belief that ground forces were the basis of her national security. However, at the end of the war her most likely opponents were now the traditional maritime powers, who had not only been responsible for the capitalist intervention during the Revolution, but had recently demonstrated their capacity to project continental-scale armies over vast distances of sea and to support their operations ashore. The likelihood of maritime invasion of the Baltic and Black Sea coasts was considered substantial. The Baltic gave access to the lines of communication with the Western front; the Black Sea would allow the invaders to bypass Russia's traditional defense in depth; and the rivers, instead of serving as defensive barriers, would provide the invaders with easy access to Russia's industrial heartlands. In enemy hands, the Black Sea becomes a grenade in Russia's gut.

In 1945, Russia had a powerful army but lacked a battleworthy fleet, and the navy therefore received relatively high priority in the rebuilding process with force requirements largely carried over from before the war. Under the new, twenty-year naval construction program, no less than 1,200 submarines were to be built. We know that for certain. And reckon that they also planned to build some 200 escorts, 200 destroyers, about 36 cruisers, 4 battlecruisers, and 4 aircraft carriers during this period, plus a mass of torpedo boats, gunboats, and subchas-

ers, and some 5,000 aircraft in the naval air force. Large numbers; but of course nothing comparable to the size of the combined Western navies at the end of the war, and even the submarines fall into perspective when divided among the four fleets. The prewar concept of defense in depth and coordinated attacks by air, submarine, and surface units were carried over. About 1,000 of the 1,200 submarines were intended for the defense of the home fleet areas, and the carriers were probably intended to extend fighter cover in the North and in the Pacific.

However, in 1954, as a consequence of the post-Stalin policy review, the Soviet leadership downgraded the threat of airborne invasion and gave first priority to the danger of a surprise nuclear attack by strategic bombers. The naval threat from the West was seen in more limited terms of nuclear strikes by carrier-borne aircraft, primarily against naval bases. This engendered a radical reappraisal of naval requirements and the decision to place primary reliance on long-range cruise missiles, which would be carried by small to medium surface ships, diesel submarines, and aircraft. The operational concept relied on the reach, the payload, and the accuracy of these weapons as a substitute for large numbers of weapon platforms. However, the missile systems had yet to be developed.

Khrushchev brought the 45-year-old Gorshkov to Moscow to implement these decisions. The building of cruisers was checked in mid-course, the mass-production of medium-type submarines, then building at 72 units a year, was sharply tapered to a halt, and while the destroyer, escort, and subchaser programs ran their full course, their successor classes were put back four years. This represented a sixty percent cut in annual production of tonnage, enabling substantial resources to be released from warship construction to the domestic economy. Seven of the thirteen largest building ways were reassigned from naval use to the construction of fish factory and merchant ships. This shift of resources from naval to commercial construction was an important indication of Soviet priorities in the use of the sea.

The new concept of operations was predicated on engaging enemy carrier groups within range of shore-based air cover. It envisaged coordinated missile attacks by strike aircraft, diesel submarines, and large destroyers. These newly-designed units, the Badger C strike aircraft, the Juliet and Longfin missile submarines, and the Kynda missile ship, were intended to enter service in 1962.

However, by 1958 the key premise that shore-based fighter defense would be available over the encounter zone had been falsified by increases in the

range of carrier-borne aircraft. This allowed U.S. carriers to strike at Russia with nuclear weapons from the Eastern Mediterranean and the southern reaches of the Norwegian Sea. To meet this threat from distant sea areas it was decided to place primary emphasis on nuclear submarines which, though not suitable for their intended offensive purposes, would be able to outflank the West's surface and air superiority. Plans were therefore put in hand to double nuclear submarine production (which was just beginning to yield the Hotel and November classes) to 10 boats a year, with deliveries due to begin in 1968. The recently authorized diesel submarine program, were cancelled and, as an expedient, their long-range missile systems were used to reconfigure nuclear submarines as SSGN: the Echo classes. Meanwhile, the development of a horizon-range submarine missile with its own target location capability was put in hand.

At this same period in 1957-58, a requirement to extend the range of ASW coverage beyond that provided by shore-based helicopters was identified, particularly in northern waters, where the Soviets assumed the U.S. Polaris submarines would patrol. This generated the requirement for the Moskva class of antisubmarine helicopter carriers.

So far, I have only talked of those forces directly involved in the defense of the home fleet area, and I must now backtrack to pick up the task of "strategic," or long-range delivery. At the end of the war, the torpedo-firing diesel submarine was the only weapon system available to the Soviets which had the range and payload to bring atomic weapons to bear on North America. This, combined with the navy's tradition of daring attacks on enemy ports, led to the navy being given the task of long-range delivery. A nuclear warhead for a torpedo which, presumably, was to be exploded in such places as the approaches to New York or Hampton Roads, was probably developed by 1954, and a ballistic missile was fired from a submarine in 1955. This led to four classes of submarine which began to appear in 1958: two diesel, the Foxtrot and Golf, and two nuclear, the November and Hotel, one of each armed only with torpedoes, and the other carrying missiles. However, problems (the nuclear classes were noisy and unreliable and the missile-armed classes had an unreliable weapon system), coupled with advances in American antisubmarine capabilities meant that at least three of these four classes were unable to meet planned operational requirements. The torpedo-armed November were therefore re-tasked upon completion to the anti-carrier role (the Foxtrots were re-tasked after Cuba), the role of the missile-armed submarines was

curtailed, plans for the navy's future contribution to long-range nuclear delivery were cancelled, and the second half-generation of nuclear submarines, the design we now know as the Echo II class, was reconfigured for the anti-carrier role, as were the last five units of the first half-generation. The Echo Is were later converted back to straight torpedo-firing submarines.

This brings us up to the crucial year of 1961, but before moving forward let me summarize what I have said. During its first forty years, Soviet naval policy and the allocation of resources to naval construction reflected Soviet perceptions of the threat of assault on Russia from the sea. After World War II we see first the mass-construction programs designed to meet a misperceived threat, which was incorrectly inferred from the capitalists' war-inflated navies and from a Marxist prognosis of history. This is followed by savage cuts in shipyard allocations when the likelihood of seaborne invasion was realized to be low. And then we have the heavy investment in nuclear submarine construction facilities, responding to the new and correctly-perceived threat from carrier-borne strike aircraft, and to the need to oppose them in Western-dominated waters.

Meanwhile, Soviet efforts to develop a counter to the maritime capability of the West were continually thwarted by technological advances, which rendered program after program obsolescent before the units had even entered service. Of the 23 important classes of submarines and major surface ships whose construction was decided on in the late '40s, only five of the earlier surface types ran to schedule. By the middle '50s, all programs had been radically altered. Nor did the decisions taken in 1954 and in 1957-58 fare any better, and we have a continuing picture of cancellations, adaptations, and expedients. These facts are important to current Western assessments since, in crude terms, about 75 percent of the Soviet Navy's distant-water surface ships and over 60 percent of their submarines stem from design decisions taken during these years. The remainder are of more recent origin.

As we move in to the current period, we must broaden our perspective and I want to focus briefly on a significant double shift (or wiggle) in Soviet defense policy during a twenty-month period in 1960-61. In January 1960, Khrushchev announced the result of what appears to have been a thoroughgoing defense review, which included the formation of the Strategic Rocket Force, its designation as the primary arm of the nation's defense, a substantial reorganization of military research and development, and

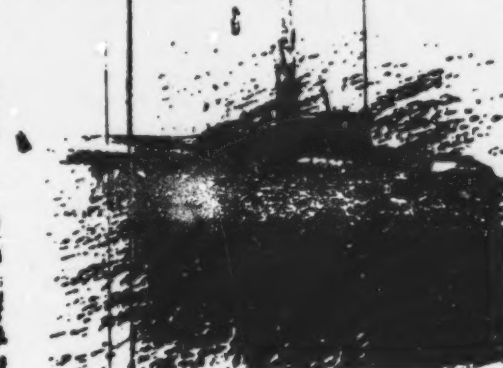
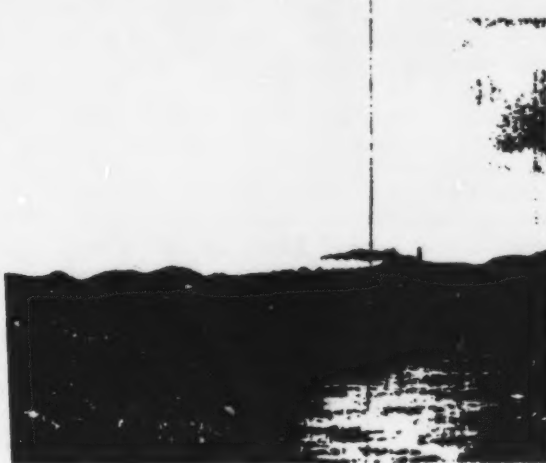
the cutting back of conventional ground forces. Given Khrushchev's faith in nuclear missiles and his belief that nuclear war would be suicidal, the new policy could only indicate a shift in emphasis towards the Western concept of nuclear deterrence, and away from the traditional reliance on balanced forces and a war-fighting capability. But by October 1961 the shift had been reversed and at the 22nd Party Congress, Marshal Malinovsky's speech clearly indicated a return to the traditional military values. Meanwhile, a thoroughgoing reappraisal of what was involved in fighting with nuclear weapons and the development of a whole series of consequential policies appears to have been put in hand.

What caused this reversal? It was clearly a blow to Khrushchev's policies and vindicated those who argued that professional military opinion should prevail in matters of national defense. Bureaucratic politics is too facile an explanation; there must have been some significant change in what Soviets call the "objective factors" to have tilted a recently achieved balance of opinion within the leadership back to earlier policies, and by far the most plausible would be a change in threat perceptions. There is now a substantial body of evidence that the range of defense policy decisions announced by President Kennedy shortly after taking office in January 1961, engendered just such a reevaluation of the threat, and prompted the various measures which can be dated to this period. These included a very sharp acceleration of the Polaris program and a doubling of the planned production rate of solid-fuel ICBMs, which would be deployed in underground silos remote from centers of population. Perhaps equally important in terms of Soviet threat perceptions was the crusading rhetoric

of the new administration, with its willingness to go any place, pay any price, and the detached logic of the tough-minded academic strategists who were thinking the unthinkable, and developing theories of limited nuclear war. In the circumstances it is not surprising that the Soviet leadership decided that they could not rely on nuclear deterrence, despite its obvious economic attractions, and applied themselves instead to the problems of fighting and winning a nuclear war, the likelihood of which appeared to have increased.

To understand the cluster of decisions that were taken in 1961, four related points concerning Soviet military doctrine must be borne in mind. First, Marxism sees international relations as conflictual, and the Soviet Union has always taken the possibility of major war very seriously. While its assessments as to the likelihood of war with the West have varied over the years, the Soviet leadership has never wavered in its belief that a strong military capability is the best way of making it less likely.

Second, Soviet military doctrine does not separate out the idea of "nuclear deterrence" from the general concept of defense. Defense of the Soviet Union depends on the capability to repel, or at least absorb any attack, and then go on to win the subsequent war. The Soviets obviously hope that their defense capability will be sufficient to dissuade an aggressor, which is of course deterrence in its traditional sense. But the crucial distinction between this and the Western concept of "nuclear deterrence" is implicit in the comment that "if the deterrent has to be used,



The main role of the Soviet Navy are to be ready to protect their own ballistic missile submarines, such as this Yankee class (above), and to be prepared to destroy those of their enemies, such as the USS Sam Houston (SSBN 609), seen left, at Chinhae, South Korea. So, "despite its manifest inadequacies," the Soviet Navy was "required to move forward in strategic defense."

it will have failed." The Soviets do not entertain such ideas. Should war come, their defense will only have failed if their armed forces are unable to recover and go on to final victory. This emphasis on defense through war-fighting is central to Soviet military doctrine. While Western theorists saw nuclear weapons as a means of threatening "unacceptable damage" to Russia, the Soviet Union saw them as integral to her fighting capability. Where the West thought in terms of credibility, argued about the arcane merits of counterforce and counter-value, or worried about stabilizing and destabilizing "developments," the Soviets focused on achieving victory in war. It is true that Khrushchev, and Malenkov before him, expressed the opinion that there could be no winners in nuclear war, and as we have seen, advocated some form of deterrence policy, partly as a means of reducing military expenditures. But in the final analysis, neither was successful, because the security-conscious collective leadership was unwilling to base the defense of the homeland on an untested theory.

Which leads to the third point. This readiness to think through the implications of the nuclear arms race does not imply that the Soviet Union would willingly embark on nuclear war with the West. Marxist-Leninist theory lays down that the initiation of war as a deliberate act of policy can only be justified if (a) victory is virtually certain, and (b) the gains clearly outweigh the costs. War with the West meets neither of these criteria since by definition, such a war would be a world war and, again by definition, world war involves a fight to the finish between the two social systems. Defeat would be synonymous with extinction. Victory comes from survival. It is this catastrophic consequence of defeat which explains why, despite the admittedly low probability of such a war occurring, that preparations to fight and win one continue to be given such high priority within the Soviet Union.

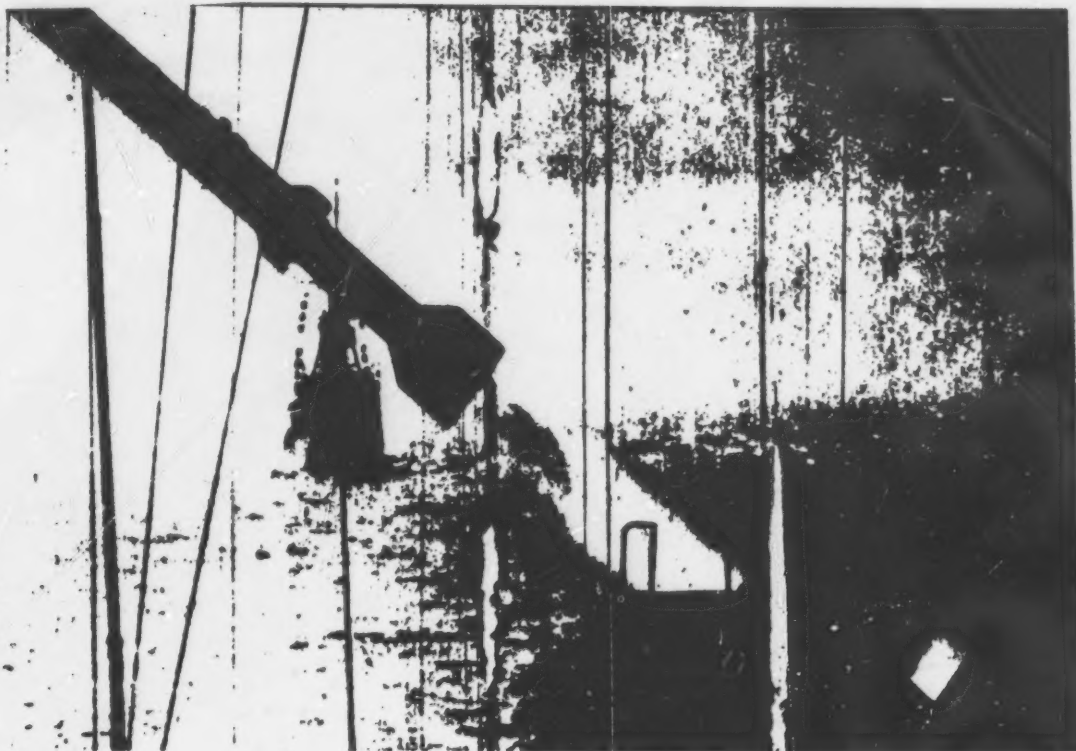
Which brings us to the fourth point. Plans to cover the contingency of world war must provide for two equally important sets of objectives. The first focuses on *extirpating the capitalist system*, by such means as destroying its forces, its war-making potential, and its structure of government. The second set focuses on *preserving the socialist system* which, besides protecting the structure of government and ensuring the survival of some proportion of the working population and industrial base, must also aim to secure an alternative economic base which can contribute to the rebuilding of a socialist society. The implications of these dual sets of objectives are fairly self-evident, particularly in regard to the require-

ments for effective civil defense, the priority in locating ABM sites, the preferred size of missile inventories, and the importance of NATO Europe as an alternative economic base.

In the light of these four points, let us now consider the impact of the Kennedy decisions on Soviet naval developments. Acceleration of the Polaris program highlighted a trend which has been alluded to repeatedly in Soviet pronouncements, namely the shift in emphasis from land- to sea-based nuclear delivery systems, which the Soviets claimed constituted one-third of the U. S. inventory in 1966, rising to one-half in 1970. What underlay this shift in emphasis? When Polaris became operational, its most vaunted characteristic was its invulnerability which, in Western deterrence theory, provided an "assured response." But from the Soviet point of view, the more important implication of this invulnerability was that these missiles could be held back from the initial nuclear exchange, with the fair certainty that they would remain available for use at a subsequent stage of the war. So, too, could carrier-based nuclear strike aircraft.

The capacity of sea-based systems to survive the initial exchange affected two aspects of Soviet military doctrine. First, strategic reserves. Largely ignored by nuclear deterrence theory, the requirement for strategic reserves is integral to the concept of war-fighting with nuclear weapons. Soviet strategy must assume that the availability of nuclear weapons may be critical at certain stages of a war, and that he who is in sole possession of a substantial capability is likely to determine both the final outcome of the war and the political structure of the postwar world. Since the West was acquiring sea-based systems which could be withheld from the initial exchange, the Soviet Union had at least to match this capability for deferred strikes. But the military planners had also to provide against the emergence of capitalist power bases outside the NATO area, such as Australia, South Africa, and Brazil.

The second aspect was the potential availability of NATO Europe as an alternative base from which to help rebuild the socialist system. This meant that Western Europe must be occupied rather than ravaged, and required a concept of political and military operations that limited battle damage to the minimum. The importance of Europe in this role was increased by the fact that America had no comparable option, since potential areas like Canada were targeted by Russia. However, this advantage would be lost if, after the Soviet occupation of Europe, Western sea-based strategic systems could deny Russia its use.



Of the problems which faced the Soviets in 1961, the simplest was to provide the sea-based weapons which would serve as the national strategic reserve. Although the navy had previously been relieved of its strategic strike role, the Soviets were already committed to increasing the rate of nuclear submarine construction from five submarines a year to ten, with deliveries starting in 1968. It was therefore possible to provide six ballistic missile submarines and four attack submarines annually for the ten-year production run 1968-77, although this change to the configuration-mix did cause major disruption to shipyard assembly facilities, the SSBNs being almost twice as large as the attack submarines which had already been intended.

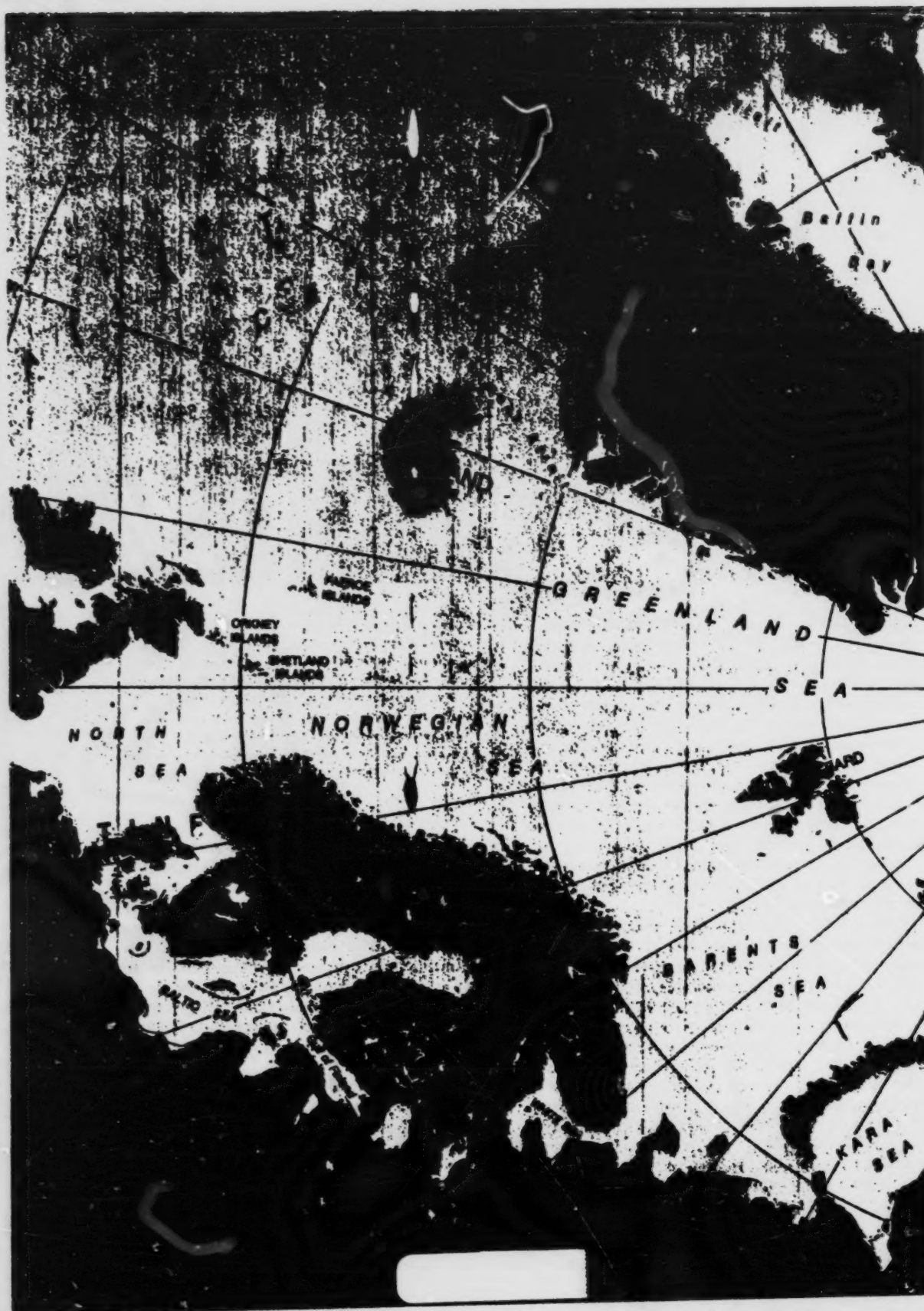
Given their problems with the West's antisubmarine capability, it seems likely that the 1,600-mile SS-N-6 carried by the Yankee was an interim solution, with the 4,200-mile SS-N-8, which could be fired from home waters, as their final objective.

In contrast, the problem of providing a counter to Western sea-based systems was immensely complex. However, the triple potential of these systems, as part of the initial exchange, as the core of the West's strategic reserve, and as the means of preventing Soviet use of NATO Europe, meant they ranked high among the various threats to Russia. And paradoxically, the most important objective, that of denying the West the option of withholding nuclear weapons or use at a later stage of the war, would be some-

Years ago, "advances in American antisubmarine capabilities" helped to frustrate the Soviet Navy's plans for war against the United States. The Soviets then put their overmatched ships and weapons to other uses, while they sought other answers to their problems, one of which was to keep American weapons, such as Asroc (above) away from their oceanic bastions. Perhaps most notable among the "other answers" the Soviets have found is forward deployment and impressive new ships and aircraft.

what simpler to achieve than the less critical aim of limiting damage during the initial exchange. To achieve the first objective, it should only be necessary to pose a threat to sea-based systems that was sufficient to persuade the West to use those weapons while it could. This required that the U. S. submarines (and, for that matter, the carriers) be attacked at the very onset of war and meant that Soviet forces would have to be within weapon-range contact at the vital moment. Soviet surface ships and submarines must be predeployed in the seas where the threat lay.

Herein lies the genesis of the Soviet Navy's shift to forward deployment and, as I bring the story through to the present, let me emphasize that for the time being I will continue to focus exclusively on the navy's war-related mission. I will come back to the emergence of the peacetime role later on, on the basis of a fair amount of evidence I remain convinced



that strategic imperatives of the kind I have outlined provided both necessary and sufficient cause for the decision that, despite its manifest inadequacies, the Soviet Navy should be required to move forward in strategic defense.

The shift to forward deployment appears to have been decided upon in principle by the end of 1961, but the debate about means continued until 1963 or 1964 and, as Gorshkov has said, the new requirements demanded "the organic restructuring of the fleet and the reorientation of traditional naval policy and operational habits." The policy that finally emerged was shaped by several persistent tendencies. First, we have the traditional Russian spirit of technical and conceptual innovation and a readiness to adopt new but unproven technological advances. Second, a keen awareness that the best is the enemy of the good and, particularly where defensive responses are involved, a willingness to invest in ten percent solutions, rather than wait until the complete answer is found. Third, a belief in the progressive application of new concepts and capabilities, as they become available; there are often discrete phases of initial, interim, and final application. In part, this is the "Don't just sit there, DO something" attitude, but it is also a conscious form of operational evaluation and development. Fourth, a readiness to take a very long-term view, and to persist with a problem until some type of solution is achieved.

Fifth, we have ground-force domination of military strategy and military policy which has, at times, required the navy to undertake tasks that violate traditional naval assumptions and has forced the navy to develop radical concepts. An interesting example of this is the application of long-range surface-to-surface missiles to warships in the mid-1950s, overriding naval objections. Another is the deployment, ten years later, of all-armed ships to the Mediterranean to act as forward observation posts to call down shore-based fire on U. S. carriers, although they themselves were easily sunk. Sixth, the heavy emphasis on a combined arms approach to military problems.

"Whereas in the past, the Soviets have been primarily concerned to deny command of the Norwegian Sea to the West, they are now concerned to secure command for themselves, as a means of strengthening the outer defenses of the SSBN bastions." Since "command of a sea area is greatly facilitated by control of the adjoining coast . . . this raised the new requirement for a long-range heavy assault lift, suitable for seizing key islands and stretches of the Norwegian coast." Here, then, is one of the main areas in which any war between the Warsaw pact and the West will be waged.

The Rationale for the Development of Soviet Seapower

This has had an invigorating effect on the development of Soviet naval doctrine, which has come to incorporate what are essentially ground-force concepts, such as theaters of military operations. It has also ensured that the resources of all relevant branches are deployed to meet any serious threat to the homeland, including those which come from the sea. And seventh, there is the concept of area defense which, though originating in the army, is fundamental to Soviet naval strategy, and is worth elaborating.

The concept of area defense is based on two main zones: an inner one, where local superiority of force allows command of the sea to be secured, and an outer zone, where command of the sea is actively contested. The greater part of Soviet naval policy and procurement since the 1920s can be explained in terms of the Soviets' attempts to extend their maritime defense perimeter and, within it, the zone of effective command.

As you know, the Soviet Navy is split among four widely separated fleets. If these individual fleets are to be ensured the superiority of force necessary to establish command in their respective areas, they must be able to deny the enemy the opportunity to concentrate his forces against any one fleet. This is most economically achieved by seizing the exits from the fleet areas, thus denying the enemy entry into those areas. In this particular respect, Russia is favored by her geography. Three of her main fleet areas comprise semi-enclosed seas, and access to the Northern Fleet is canalized by ice during much of the year. Only Petropavlovsk lacks any geographical advantage of this kind.

Until 1961 the navy's primary concern was therefore to extend the inner zone of effective command to these natural defensive barriers, all of which now are held by NATO allies (Norway, Denmark, and Turkey) and would have to be seized by Soviet forces in the event of war. The outer zones did not reach far beyond these geographic restrictions and were primarily seen as areas where the reinforcement of the enemy forces defending these barriers could be interdicted. It was therefore natural that part of the Soviet response to the threat from Western sea-based nuclear weapons was to extend these outer defense zones, but this could only provide a partial solution. A comprehensive answer to the problem required some means of knowing continuously the location of the enemy's long-range nuclear delivery units wherever they might be, and the capability to destroy them on command. This would be hard enough to achieve against carrier task forces; against missile submarines the problem was truly daunting. The Soviets nevertheless embarked on a difficult and

expensive and their incremental approach to the problem was typical. First, do what you can, with what is available. Meanwhile, put in hand a series of projects, ranging from the short to the very long term, each aimed at progressively improving that capability and ultimately achieving an acceptable solution.

The Soviet response involved two overlapping concepts, area defense and long-range interdiction and, in terms of operational deployment, the ordering of priorities was fairly clear. Set at 1,500 miles (the range of the Polaris A-2 missile) and centered on Moscow, the arc of threat took in the Norwegian Sea and the Eastern Mediterranean, areas where Western strike forces were already operating. Extended to 2,500 miles (the range of the A-3 missile) the arc cut across the Atlantic from beyond Greenland to the African coast abreast the Canaries and then crossed the Arabian Sea between the Horn of Africa and Bombay.

The first requirement was to extend the limits of the outer defense zone to the 1,500-mile arc-of-threat and then progressively develop the capability to contest, and perhaps ultimately to deny, the use of these waters by Western long-range nuclear forces. Initially, this would involve an increasingly active naval presence, backed by shore-based missiles and aircraft. But new systems would be required to counter the submarines in these areas.

The second requirement was to acquire the capability for naval and air operations beyond this outer defense zone, in order to develop a counter to the longer-range Polaris A-3 system and its successors, and also to cover carrier deployments from American bases. In the short term these distant operations might have to depend on naval shore facilities in foreign lands. But in the longer term it was hoped to develop autonomous systems, such as reconnaissance satellites, anti-naval missiles emplaced ashore, and new classes of submarines, which would not have to rely on the good will of foreign rulers and would provide a truly worldwide response to the threat of strikes from the sea.

Such a policy is easy enough to describe but, besides the intrinsic difficulties of locating and destroying the targets, we must recall some of the circumstances. First, in 1961 the Soviet Navy was at an ebb as a result of the curbacks in naval construction which stemmed from the 1954 decisions, and the further disruptions arising from the reversal of plans in 1957-58. All the existing surface ships and many of the submarines had been designed to operate within shore-based air cover, most of the ships, surface and submarine, in the current building pro-

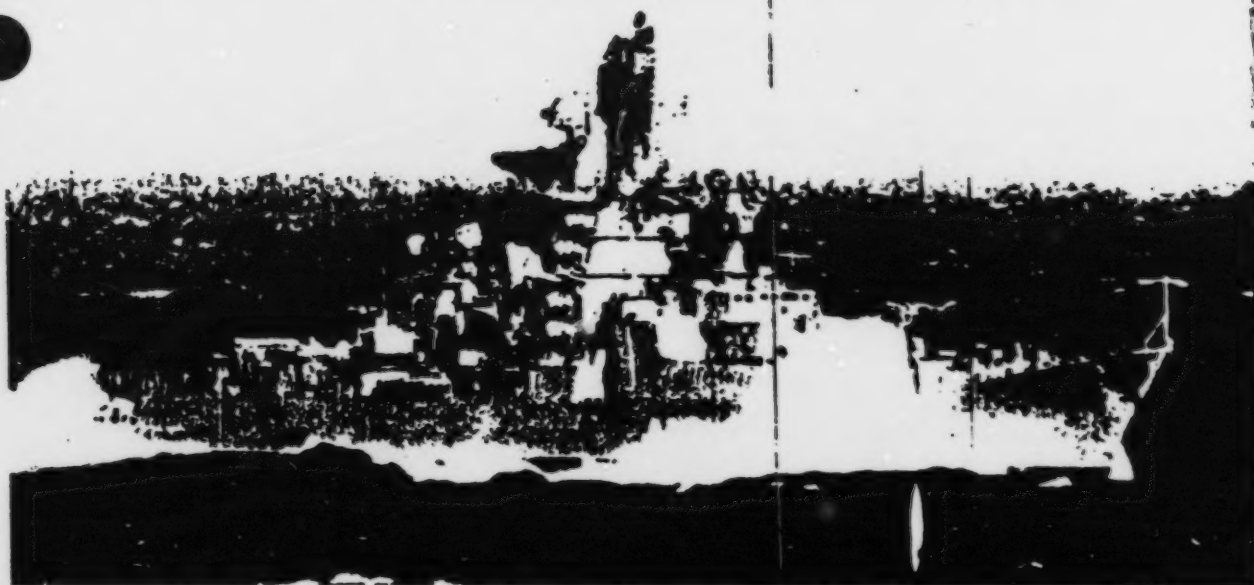
grams were designed to fight carriers, and 60 percent of future nuclear submarine construction was reserved for long-range nuclear strike.

Second, the Soviet Navy was being required to move forward into seas where the West enjoyed overwhelming maritime preponderance. The concept of relying on the freedom of the seas and the "protection of peace" to safeguard the deployment of ill-armed ships (particularly in the Mediterranean) was daring, given the tenor of debate in the West at that time, which included proposals for maritime countermeasures, such as seizing Soviet ships at sea, against Soviet pressure on Berlin.

And third, the army-dominated Soviet leadership was skeptical of surface ships, and even when they conceded a need for such ships it had to be met from within the navy's agreed-upon shipbuilding allocation.

The surface ship programs give a good indication of the new priorities. During the 1960s we see a shift from anti-surface to antisubmarine systems of armament and an increased emphasis on the ships' survivability. As an interim measure, the ASW and SAM systems intended for the now-cancelled ships of the Kynda and Kresta programs were used to convert Kotlin and Krupny class destroyers into effective antisubmarine ships. The Kynda class, the first of which Khrushchev described as a "floating coffin" at her commissioning ceremony, was ended at four ships, the yard facilities thereafter being used to build five extra Kashins. The *Mukha* program was cancelled at two ships. The ASW and SAM systems intended for the later ships of the class were transferred to the Kresta program, resulting in the Kresta II. The Kresta II's primary role became, not anti-surface warfare, but antisubmarine warfare. The *Mukha* class, designed to operate within a few hundred miles of friendly airfields able both to supply spare helicopters and provide air cover and support, would be inefficient for distant-water operations, and those ships therefore were succeeded by the *Kirs*, with over twice the aircraft capacity and a better defense capability.

Looking ahead to the end of the Kashin program, its successor, the Krivak, would be specialized for ASW, as would a new cruiser-size ship, the Kara. However, to start both Kara and Krivak and complete the Kresta II program, it would be necessary to drop the escort-sized ship from the inventory, meant not providing a replacement for the *Kirs*. The effect of these decisions was to introduce into the fleet a substantial number of ships intended primarily for distant deployments, ships of a type different from those designed to operate in the



of shore-based air cover and other forms of support. Meanwhile, no provision was made for any substantial increase in aloft support.

In relation to the new requirements being levied on the navy, the allocation of resources to shipbuilding was niggardly, the more so when we consider the scale of naval construction which had been authorized in the West at this time. We therefore can say with some certainty that in the first half of the sixties, the navy was still seen in Moscow as an expensive necessity, rather than as a preferred instrument of overseas policy.

The first phase of the shift to forward deployment, involving the progressive extension of the outer defense zone, lasted through 1967. In the Norwegian Sea it was not all that difficult to increase the range of Northern (and later Baltic) Fleet operations and it became standard practice for Northern Fleet ships and aircraft to deploy whenever significant Western forces operated in the area, with the NATO carriers being targeted by Soviet surface, air, and submarine missile systems.

In the Mediterranean, where the Sixth Fleet was deployed, and Russia had just been evicted from its Albanian base, the problem was immeasurably greater. The Soviet Navy did not attempt a sustained presence until 1964 and even then operational activity remained low and intermittent. The main emphasis was on trailing the U. S. strike carriers when they operated in the Eastern Mediterranean and, since missile-armed units were not always present, it can be assumed that the resulting target location data

"The adoption of the defended fleet concept for their own SSBN has placed an increased emphasis on the outer defense zones in the Norwegian Sea and the Northwest Pacific. Here we see a Kresta II class of large antisubmarine ship sniffling through the Norwegian Sea at high speed in 1978. Unable to count on defense by Soviet fighters, the ten ships of this class are well supplied with air defense sensors and weapons."

was for use by systems ashore such as ballistic missiles and strike aircraft based in southwestern Russia. The Soviets did not begin to be effective in the Mediterranean until they gained access to Egyptian ports and airfields following the 1967 war. Thereafter we see a progressive improvement in terms of numbers of ships and combat effectiveness until about 1972, when the trend levels off. By then both in the Norwegian Sea and in the Eastern Mediterranean, the Soviet Navy could deploy an effective challenge to the strike carrier. The Soviets, however, had no comparable capability against the Polaris submarine in these areas, despite the steadily increasing emphasis on ASW.

The second phase of the shift to forward deployment began in 1967. This took in the 2,500-mile circle of threat and also addressed the problem of the U. S. Fleet's bases in North America and the U. S. Navy's transit routes across the Atlantic. After testing and rejecting the feasibility of providing mid-ocean support to anti-carrier submarines, we see the search for shore facilities with San Juan in Cuba, Conakry in Guinea, and Berbera in Somalia, as the

chosen hosts. A Cuban base would reduce submarine time-in-transit to America's eastern seaboard from twenty days to about four. Africa, or better still the Cape Verde Islands, gave access to the Canary Basin, straddling the Mediterranean approaches. Somalia provided a *point d'appui* in the northwest quadrant of the Indian Ocean. This latter is often misread as the Soviets rushing in to fill a vacuum left by the British, but the hydrographic precursors to the Soviet deployment were active in the area during 1967, at a time when British defense policy was still firmly committed to its role east of Suez. Meanwhile, the Arabian Sea provides better target coverage of Russia and China by a 2,500-mile missile, than does any other sea area. Long-standing Soviet suspicions about its use as a launch area for Polaris and Poseidon had been fueled by the 1963 agreement to build a U. S. Navy VLF communications station at North West Cape in Australia. Those suspicions were reinforced in 1966 by the agreement on the combined British and U. S. use of Diego Garcia near the center of the Indian Ocean, with America paying the costs of developing the base.

"The chastening discovery of just how long it took to develop any effective operational capability in distant seas" meant that the Soviets had "better start practicing right away at what they could do . . ." One result of such efforts is seen here with a modern Boris Chilikin class underway replenishment ship refueling a Kyuda. The Boris Chilikins, six in number, are credited with a speed of 19 knots. They are armed with 57mm guns in two twin mounts, both visible on the forecastle.

By 1971, the worldwide Soviet pattern of deployment was clearly established, and within a year or two the buildup had leveled off. There is little doubt that during the later stages of this extended process some of the original reasons for the shift to forward deployment would have been eroded and overlaid with new ones, including the navy's emerging peacetime role. Nevertheless, we should not underestimate the persistence of the original rationale, which stemmed from the Soviet emphasis on contingency planning for world war. And while a fuller realization by the Soviets of the problems inherent in countering Polaris may have cast doubt on the value of these interim measures, the chastening discovery of just how long it took to develop any effective operational capability in distant seas meant that they had better start practicing right away at what they could do, with the thought that thereby eventually they would develop suitable ships, equipment, and methods.

The decisions taken between 1961 and 1964 go a long way towards explaining both the present structure of the Soviet navy and a substantial part of its operational practices and patterns of deployment. But of course policies evolve and new requirements emerge, and towards the end of the sixties a cluster of developments combined to have a major effect on the navy's war-related priorities.

Probably the most significant were reports in 1967-68 that the U. S. Navy was intending to develop two new classes of submarine for service in 1973-74, one very fast and the other very silent, the latter being specifically designed to operate against



Soviet SSBNs. This, of course, had major implications for the Soviet decision to embody a substantial part of the nation's long-range nuclear reserve in ballistic missile submarines. It highlighted the requirement to defend these new ships, just then beginning to enter service, against U. S. incursions. The important fact was that the Americans were actually talking about going after those submarines. That was what worried the Soviets. The fact that in due course the U. S. Navy built only one very silent submarine is not relevant to Soviet perceptions at the time.

Meanwhile, as more ant submarine systems became available, mounted in surface ships, submarines, and aircraft, it must have become increasingly clear that however innovative their methods, the traditional ASW instruments embodied in these units had inherent limitations, and an effective solution to the Polaris and Poseidon problem would have to wait on the results of research and development still in progress.

Taken together, these two events engendered a shift away from developing a conventional ASW capability in distant waters (as part of the counter to Polaris) towards extending the inner defense zones in the Northern Fleet area and in the Pacific off Kamchatka, and providing them with watertight anti-submarine defenses which would turn them into ocean "bastions" where SSBN could deploy in safety. Because ASW units can be brushed aside by superior forces, it would be necessary to establish command of both these sea areas.

To meet these changed requirements, the navy would need improved capabilities and, for a start, it was agreed that the follow-on classes to the Kara and Kresta programs (which would be due to begin delivery in 1980), would be some 25-30 percent bigger, allowing larger weapon loads and greatly increased combat endurance. A scaling-up process was also applied to the amphibious program, the Polnocny size being dropped from the schedule, the Alligator size carrying on (Ropucha), and a much larger ship, the *Ivan Rogov* class, being added. The latter and the new *Brezina* class of underway replenishment ship are notable for being relatively heavily armed with self-defense systems, reflecting a new emphasis on being able to survive in hostile waters.

These follow-on classes would all be built within the navy's existing allocation of shipyard facilities. It was, however, decided to add a completely new type of ship to the surface program, a heavily armed nuclear-powered battle cruiser, which would be able to provide the command facilities which had been found so essential to forward deployment. This addition to the program required the return to naval use

of construction facilities which had been turned over to civilian shipbuilding in the mid-fifties.

On the submarine side, it was probably already planned that at the end of the ten-year buildup of SSBN in 1977, resources would be moved across to correct the dearth of SSN for use in the ASW role. However, the final details of the follow-on programs were probably held over until the performance of the Alpha prototypes could be evaluated, and the full impact of the SALT negotiations was known.

This is what appears to have been agreed at the 24th Party Congress which approved the 9th Five Year Plan in the spring of 1971. However, the navy did not consider that these additions would be sufficient to meet the new demands being placed on it. Having lost the argument within the planning process, it decided to take its case against the army-dominated military leadership to a wider audience by means of the articles in *Moskovskiy sbornik* which we refer to as "the Gorshkov series." This debate had wide ramifications which I will come to later, but a major strand of the argument concerned the importance of general purpose types and the need for a greater range of surface ship types, not excluding aircraft carriers.* It appears that by mid-1974 the navy had won at least part of its case, and an additional class of surface ship, comparable in size to the Kresta replacement, was added to the plan to allow for task specialization between classes. More important, the leadership seems to have accepted that the new concept of operations would require effective seabased air support, and it appears that an aircraft carrier program was authorized, with the first ship due to enter service in the mid-eighties.

This brings my explanation of the Soviet navy's Western-oriented war-related role through to the present. Before turning to consider the implications of the added threat from China, let me touch briefly on specific missions in the event of war with the West. Bear in mind what was said about the reality of world war in Soviet contingency planning and accept that, irrespective of argument about the nature of nuclear war and its possible length, the Soviet planner must think not only of a post-exchange phase, but of subsequent phases through to its resolution. This emphasis on war-fighting, which must allow for the disruption of supply systems and base facilities, has major implications for the employment or withholding of forces in the initial stage of a war.

*For a summary of the evidence that Gorshkov was arguing for carriers, see my "Naval Power and Soviet Ocean Policy" in *Soviet Ocean Policy*, ed. John Hardt (Ed.), U. S. GPO, October 1976, pp. 1-2. Prepared by CRS for the Senate Committee on Commerce and Ocean Policy Study.

It also heightens the awareness that war is in large part a matter of attrition and that victory goes to the side that gives up last. This awareness leads to the principle of never allowing an enemy weapon or force a free ride and to the continuing use of not-very-good and obsolescent weapons in order to complicate the enemy's problems.

The navy's most important mission is the contribution it makes to the Soviet long-range nuclear strike capability, and the SSBN force now has three overlapping roles: intercontinental strike, continental strike, and national strategic reserve. Endless permutations of targeting, deployment, and timing in these overlapping roles are possible, but they all raise the requirement that the submarines be kept secure against attack until such time as they have launched their missiles. As we have seen, the Soviets adopted the concept of ocean "bastions," which gave a new urgency to the requirement to establish command of the inner defense zones in the North and the Pacific. But it also gave a new importance to the outer defense zone and (to focus on the Northern Fleet area), whereas in the past the Soviets have been primarily concerned to deny command of the Norwegian Sea to the West, they are now concerned to secure command for themselves, as a means of strengthening the outer defenses of the SSBN bastions.

Soviet submarines would play a key role in these operations, but to be effective they needed surface ship support—a point emphasized by Gorshkov. This new concept therefore had its major impact on surface ship requirements, since Soviet naval constructors could no longer think in terms of some "D-Day Shootout," where ships only had to survive long enough to discharge their primary mission. Instead, the Soviets now had to prepare for the kind of sustained operations necessary to gain and maintain command of a large sea area, requiring long endurance, large weapon loads, and an underway replenishment capability. Further (as Gorshkov remarked in his book), command of a sea area is greatly facilitated by control of the adjoining coast, and this raised the new requirement for a long range heavy assault lift, suitable for seizing key islands and stretches of the Norwegian coast. The Soviet navy also had to assume that in the post-exchange phase, it would be operating without shore-based air support, in the face of a U. S. carrier capability. This raised the requirement for a more ambitious type of sea-based air than that provided by the *Kin* class, not so much to protect the major surface units (which could continue to rely mainly on SAM and other weapon systems), as to deny the U. S. navy the use of the air in support of its ASW operations, and to

allow the Soviets to use air ASW in their operations against U. S. hunter-killer submarines. Command of the sea subsurface command of the air above it and, army doubts notwithstanding, there was a clear requirement for an air superiority carrier in the post-exchange phase.

So much for nuclear strike. The Soviets attach equal importance to the mission of countering Western sea-based nuclear strike systems. This is only common sense, given the concepts of war-fighting and of strategic reserves; moreover, the mission provides the bonus of damage limitation. However, we must distinguish between the priority the Soviets accord the mission, and their ability to discharge it, particularly as concerns the problem of countering Polaris, Poseidon and, most recently, Trident. Even today, we have difficulty in distinguishing between the evidence which reflects what the Soviets are *aspiring* to do, and that which reflects what their still limited capability *allows* them to do. We know that from the start they recognized that the complexity of the Polaris problem would require the application of all available resources, including involvement by other branches of service besides the navy. On the basis of past practice, we can assume that they have pursued all three of the available lines of attack (exclusion, trailing, and area search/surveillance), and I have already described their initial and interim responses aimed at achieving a modicum of exclusion by extending their defense zones. It was probably hoped that ten years would be sufficient to develop a range of measures which, beginning in 1972-73, would allow some kind of final response along each of the three lines of attack, even if they needed further improvement. As usually happens when the Soviets try to move from an imaginative concept to its practical application, they were unable to meet their timetable and meanwhile circumstances changed, but hindsight allows us to postulate the outline of their final response, as originally envisaged.

To exclude Polaris/Poseidon from the more favorable launch areas, it was probably intended to start consolidating the ASW capability in the newly-extended outer defense zones. By 1972-73, the buildup of specialized ASW forces (surface, air, and submarine) would be significant, and it may also have been planned that a WIG-type vehicle, with its capacity for high-speed low-level search, would add a new dimension to this essentially conventional capability. It was probably assumed that these measures, supplemented by those developed for the other two lines of attack, would prove a sufficient threat to encourage the United States to withdraw their SSBN

from these forward areas. The second line of attack was trailing. Given their state of the art in the early sixties, the most readily available means of providing continuous target-location data was to use active sonar to trail a Polaris SSBN with another submarine. The essential requirement was a speed and depth advantage over the quarry, and it seems probable that the Alpha was designed with this task in mind, reflecting the natural (if incorrect) assumption that any successor to the Polaris submarine would have a significantly improved performance. The third line of attack was area search/surveillance. Russia's geographic situation, coupled with their technological disadvantage in acoustic detection, virtually forced the Soviets to place their major emphasis on discovering other ways of detecting a submerged submarine and developing original means of doing so. Western statements make it clear that the Soviets did indeed take this route, including the development of space-based systems. And finally, assuming that they could solve the problem of location, it seems likely that they intended to use ballistic missiles to sink the submarine, as I explain below.

It is difficult to assess the present state of Soviet progress in developing a counter to the Polaris/Trident systems. The adoption of the defended bastion concept for their own SSBN has placed an in-

surveillance systems. However, although it is difficult to know the present level of achievement, there is every reason to assume that the Soviets are persisting in their efforts to develop an effective counter to the SSBN, and are probably still pursuing all three of these mutually-supportive lines of attack.

Turning from Polaris to the strike carrier, the Soviets appear to have developed a reasonably effective range of responses to this threat, even though it took them the best part of twenty years to do so. The requirements for locating and attacking the carriers are handled somewhat differently in each of the three main types of scenario. We are all familiar with the meeting engagement or encounter, which would take place in the approaches to the Norwegian Sea or in the northwestern Pacific and involves in-depth defense with coordinated attacks. In the Mediterranean the continuous-company scenario presents the Sixth Fleet with a difficult problem, but I suspect the evolution of this successful concept was no more foreseen by the Soviets than by us. It raises a couple of points. First, the need to be able to strike instantaneously places a premium on deployed forces, particularly the missile submarines, and it seems likely that shore-based aircraft such as the Backfire will only have a follow-up role. I would, however, expect the ships of the Sixth Fleet to be targeted by IRBM and MRBM



creased emphasis on the outer defense zones in the Norwegian Sea and Northwest Pacific, to the detriment of plans for the Eastern Mediterranean and the Arabian Sea. It would seem that the development of the Alpha proved more difficult than had been foreseen, seriously delaying the series production of this class, and meanwhile the problem of initial attachment has still to be solved. And while it is hard to be certain of their progress in non-acoustic methods of detection, there are as yet no clear indications of a major breakthrough in this field or in space-based

A Kara, a Kashin, and a Kynda armed, respectively, mainly for combat with submarines, aircraft, and surface ships, lie motionless in the Mediterranean while a hunt passes between the two furthermost ships. They are evidence that Admiral Gorbachev seeks a "balanced" fleet and will not repeat what he sees as the German error of failing "to provide anti-ASW" forces for the support of their submarines.

emplaced in southwest Russia. Second, the shift in priority from conventional ASW to securing the SSBN bastions in the Norwegian Sea and the Pacific, suggests that nowadays the primary role of Soviet ASW forces in the Mediterranean is to protect anti-surface missile units from preemptive U. S. attack.

The distant targeting scenario covers those carriers which do not immediately threaten Russia, but, not disposed of would contribute to the West's strategic reserve. Target location of these ships is provided by air and satellite reconnaissance, by surface and submarine pickets, and sometimes by trailing. Probably the Soviets hoped originally to meet the same on-command component of the anti-carrier and anti-Polaris missions with a common strike system. Two methods were probably envisaged, both relying on terminally-guided ballistic missiles: from ashore ICBMs and IRBMs; and from afloat shorter range weapons carried by submarines, strategically deployed. The present status of the concept is not clear. In 1972 the Soviets explicitly claimed they could attack surface forces from ashore. At this same period they were actively developing a submarine-launched tactical ballistic missile for use against ships, but the system appears to have been shelved in 1973. Quite apart from any technical difficulties with the latter, the Soviets may well have run into problems with SALT. If, as seems quite likely, it had been decided in the sixties to push ahead with the application of sea-based ballistic missiles against ships, the SALT limits may well have stifled the development just as it was reaching fruition and this would have created serious problems for the navy.

These, then, are the two main maritime missions: contributing to Soviet long-range nuclear strike and countering the West's sea-based strike capability. Of the other missions, I will only mention the interdiction of Western sea communications. There is some argument in the West as to the priority the Soviets accord this mission, and whether priority will be given to terminals or to ships in transit. There is also argument within the Soviet military about the importance of this mission. But this obscures the point that, irrespective of the significance the Soviets attach to Western sea communications, merchant ships are virtually certain to be attacked at the outbreak of war as a means of pinning down Western forces and, more important, of diverting them from assaulting the Northern Fleet's inner defense zone and attacking the ballistic missile submarines therein.

Let me also reemphasize how important the underlying concept of area defense is to so many of the navy's tasks, whether it be supporting military operations ashore, countering the projection of hostile

military forces, or protecting coastal communications. Particularly in the inner defense zone, we are talking of establishing command of the sea, and it is relevant that in recent writings there is a new emphasis on the importance of this traditional concept.

Finally, a word about the naval implications of a war with China. Developments during 1969 increased the possibility of such a war. Taken together with the other political developments discussed below, this means that it became a more likely contingency than war with the West, and this was reflected in the adjustment of Soviet naval priorities which took place at the start of the seventies. It had to be assumed that in the event of a war with China, the Trans-Siberian railway would be cut and that the Far Eastern Front would be supplied by sea. This introduced the requirement to protect such shipments from the Chinese navy, which includes the third largest submarine force in the world.

But this threat to shipping reached back to the northwestern parts of the Indian Ocean, where it could be posed by Chinese forces using friendly bases (eg. Pakistan or, in those days, South Yemen), by U. S. forces, or even by regional navies. The timely arrival of military supplies would be critical to the land battle in the Far East and, if circumstances prevented their shipment via the Red Sea, the Soviets would have to exploit the route used by the Allies in the two world wars, shipping down across Iran and out through the Persian Gulf. The Soviets have other naval requirements in that area since, in the event of world war, they must probably plan to move south to control the Gulf area and naval forces will be needed in the seaward approaches to fend off assaults by U. S. strike carriers and amphibious groups. But the heightened threat of war with China increased the strategic significance of the Arabian Sea, more than compensating for the shift in emphasis away from developing the means to counter Polaris in the area. The ground forces were now involved and the Soviet military investment in Somalia took off after Marshall Grechko's visit in February 1972, indicating that the provision of naval support facilities in the area was no longer a narrowly naval concern, but a matter of national defense requirements.

We can now go back to pick up the navy's peacetime role. Just as the wartime role can only be understood within the broader context of Soviet military doctrine, so must the peacetime mission be placed within the context of Soviet foreign policy and the role of military force within that policy. It is important to keep in mind the ordering of their primary foreign policy objectives. First, to avoid world war, but if it is inevitable, to win. Second, to ensure

the Communist Party's retention of power in Russia. And third, to increase the Soviet Union's share of world influence at the expense of the West and of course China. More than for most states, these objectives involve major contradictions, as for example between the defense burden and the party's acceptability, between détente and ideological control, between the dangers of escalation and the need for confrontation, and between the ideological struggle with capitalism and the domestic requirement to upgrade technology and productivity. For over twenty years the long-term strategy has been the acceptance of peaceful coexistence, a formula which rules out resort to interstate war with the West, but accepts other forms of international competition as legitimate and indeed inevitable. The term implies a mixture of competition, restraint, and cooperation with the capitalist bloc in general and the United States in particular. It is a multilevel relationship, part competition, part cooperation, and the interactions on the various planes often move in different and apparently contradictory directions. The West has difficulty with this concept, mainly because it believes normality in international relations to be the absence of conflict, and this despite its own record of the last 500 years. The Soviets have no such illusions. They see the status quo as a dynamic historical process of change. They have always been quite explicit that the ideological struggle (i.e., the fight for world influence) would continue, détente being aimed at avoiding the dangers of world war.

In considering the role of the military instrument in this struggle, it is useful to distinguish between the possession of military power and the use of military force, and between coercive force and military assistance. While the Soviets consider that military power is something you really can't have enough of, they have been very circumspect about the use of force outside their contiguous national security zone. They believe that history is going their way and, while happy to give it a nudge, it does not justify taking risks. In the past, the most useful approach was to frustrate Western attempts to interfere with this process, by strengthening the forces of world revolution through the supply of weapons, training, and equipment. On occasion this would also serve the more important objective of enhancing Soviet security, as when the arming of Indonesia lured the entire British carrier force to east of Suez.

From 1961 onwards, a series of coincidental trends combined to favor a more active overseas policy. I list them in no particular order. First, the United States placed new emphasis on counterinsurgency operations and supportive intervention, which led finally

to half a million men in Vietnam. Second, there was growing Sino-Soviet competition for leadership of the World Communist movement, accompanied by Chinese accusations that Russia was less than wholehearted in countering imperialist aggression. Third, we have the post colonial era, with the diffusion of power and the prolonged sorting-out process which follows a breakdown of structure. Fourth, we have the gradual maturation of Soviet policy towards the Third World, moving from ideological determinants to national interests concerning access to markets and certain raw materials. Fifth, as a by-product of decisions concerning the security of the Russian homeland, we have the emergence of a capability to project force overseas, the buildup of a long-range lift for the airborne forces, and the navy's shift to forward deployment. And sixth, there is the renewed emphasis within the Soviet military on contingency planning for world war, highlighting the requirements for a worldwide infrastructure.

These were all enabling factors, but it seems that Soviet ideas about a more active use of the military instrument began to be shaped by various developments between 1967 and 1972. Achieving parity in long-range nuclear weapons increased Soviet self-confidence, while a series of events caused them to downgrade the dangers that confrontation with the West would escalate to nuclear war. Among the latter, I would list the 1967 Arab-Israeli war, the Czech crisis in 1968, and the Jordanian crisis in 1970; but probably the more important was the SALT negotiation process, which led to a greater certainty of U. S. restraint. Meanwhile, the exaggerated response of the Western press to the Soviet Navy's impotent involvement in the 1967 crisis highlighted the political potential of this instrument. Then, the Egyptian war of attrition and the Israelis' deep penetration raids forced the Soviets to a decision of direct involvement in Egypt, with substantial air defense forces. And finally, the evidence of Vietnam, backed by the Nixon doctrine, suggested that the risk of direct confrontation with U. S. forces was on the wane.

Given this situation of increased opportunities and lowered risks, the overseas role of what they call a "Soviet military presence" appears to have been a major element in the sustained debate on defense and foreign policy which rumbled on from 1969 to 1973. The policy which seems to have emerged was that, anyway for the time being, direct Soviet involvement overseas would be limited to advisers, weapons, and logistic support, including the provision of adequate military supplies in the course of the battle. The combat role would be delegated to the Soviet-

equipped forces of revolutionary states such as North Korea, Vietnam, and Cuba. This allowed the Soviet Union the best of both worlds; to affect the outcome of an overseas conflict with direct battlefield support while ensuring that political commitment and liability remained strictly limited.

What we see, then is a progressive shift in overseas policy towards an increasing readiness to use a "Soviet military presence" in support of foreign policy objectives. In assessing this development and the navy's role in particular, I find it useful to distinguish between four types of objectives which underlie this peacetime employment of military forces, because each type involves a different level of risk and degree of political commitment.

At the low end of the scale of political commitment, we have "Protecting Soviet lives and property." This objective is referred to, but has received little priority to date. Landing ships are positioned to evacuate Soviet nationals in third party conflicts, but the only case of property involved Soviet fishing vessels seized by Ghana in 1969. At the high end we have "Establishing the strategic infrastructure to support war-related missions." This objective is not referred to directly, but can be inferred from the pattern of overseas military involvement during the last 20 years, and is implied in some of their more recent writings. Such an infrastructure can also serve peacetime policies, and the pattern suggests a readiness to incur high political and economic costs in pursuit of this objective. However, so far the Soviets have not used military force to maintain their position when the host country has withdrawn its agreement to their presence, although on at least two occasions, once in Egypt, once in Albania, they have sought to engineer a coup to bring a more sympathetic regime to power. Neither effort was successful.

In between these extremes we have the general objective of "Increasing Soviet prestige and influence." In naval terms this encompasses a wide span of activities ranging from showing the flag and port clearance to providing support for revolutionary forces or to regimes threatened by secessionist elements. They are prepared to commit substantial resources to this objective, such as their minesweeping activities in Bangladesh and the Gulf of Suez, but while the propensity for risk-taking has risen steadily, the underlying political commitment remains limited.

Overlapping this general influence-building objective is the more restricted one of "Countering imperialist aggression." Despite much bombast in talking of this task, I believe that in terms of risking a major confrontation with the West, Soviet political commitment is low. The first clear cut example was

the establishment of the Guinea Patrol in December 1970, since when we have the deployments of warships to the Bay of Bengal in 1971, to the South China Sea in 1972, and to Angola in 1975, as well as the three Middle East crises in 1967, '70, and '73. The latter series did show a shift from a narrow concern with the carriers towards a more general concern for the overall capability of the Sixth Fleet. But none of these examples provide evidence of Soviet readiness actually to engage Western naval forces in order to prevent them from intervening against a Soviet client state.

However, what we do see is progressively greater involvement by the Soviet Navy in the provision of logistic support both before and during third party conflicts. In 1973, Soviet landing ships, escorted by combatants, carried Moroccan troops to Syria. Landing ships were also used during the subsequent war to ferry military supplies from Black Sea ports to Syria. More significantly, SAM-armed warships were stationed where they could protect aircraft making their final approaches to the main resupply airfields in Syria and Egypt, as if to cover against Israeli air attack. And most recently, we have the escorting by Soviet warships of military supplies being ferried from Aden to Ethiopia, and the use of landing ships to deliver such supplies.

The evidence suggests a policy of incrementalism, which explores and takes advantage of opportunities as they occur or are created, a policy of probing Western responses and establishing precedents. The role of a "Soviet military presence" in support of overseas objectives will therefore be shaped by the scale and style of the Western response to the various Soviet initiatives. In this context the distinction I have just drawn between the employment of Soviet warships to ensure the safe arrival of logistic support, and their employment to prevent Western intervention against a client state is important. So, too, is the distinction between the Soviet Union's willingness to risk hostilities with a third-party state, and their continuing reluctance to engage U. S. naval forces. Meanwhile we should bear in mind that the Soviet Navy's role in this assertive policy is secondary. The primary instruments are arms supply; military advice and training; the transport of men, munitions and equipment by merchant ship and long-range air; and direct participation by the combat troops of revolutionary states. The primary role of the navy is to provide protection and support and to serve as an earnest of Soviet commitment.

This brings us to the question of whether there is some grand Soviet design driving a coordinated oceans policy in support of overseas objectives. I



think the short answer is no, but we must distinguish here between the operational aspects and the setting of objectives. The military style organization of the merchant, fishing, and research fleets means that it is relatively simple to make use of their ships in peacetime for naval support tasks such as replenishment and forward picketing, and they all make some contribution to the generalized requirement for worldwide intelligence and information gathering. There are also the geostrategic advantages to be gained in terms of a worldwide infrastructure, actual or potential. The latter includes the provision of improved harbor facilities in locations which would assume great strategic significance for Russia in the event of world war, as for example the fishing port at Gwadar in Pakistan.

But when we turn to objectives, we see that the long-term interests of the three main fleets often diverge. The buildup of the fishing fleet stemmed from a decision in the late forties that fisheries were a more cost-effective source of protein than collective farming. The buildup of the merchant fleet reflected the post-Stalin shift in the middle fifties towards trade, aid, and arms supply, and the consequential requirement to earn hard currency and avoid dependence on foreign bottoms. The navy's shift to forward deployment reflected the new threat to the Soviet homeland from distant sea areas. Inevitably there is some conflict among these interests and, at the Law of the Sea negotiations, the narrow domestic concerns of the Soviet fishing industry, which likes to work as close as possible to foreign shores, thus irritating local fishermen, ran counter to the foreign policy objectives of increasing Soviet influence. Similarly, security concerns and the concept of strategic infrastructure have led the Soviet Union into political entanglements which would seem to be against her broader interests. Only the merchant fleet, which brings in military supplies, takes out local commodities such as bauxite or sugar, and is generally a

If the Trans-Siberian railway were cut during a war with China, supplies to Eastern Siberia would have to go "via the Red Sea," or be shipped "down across Iran and out through the Persian Gulf." Hence, naval forces would be needed in the Indian ocean "to fend off assault by U. S. strike carriers" such as those seen here in the Indian Ocean this past February when the Kitty Hawk (CV 61), Midway (CV 41), and Nimmitz (CVN 68) met in the Arabian Sea. With the carriers are four cruisers (three of them nuclear-powered), a Spruance, and an old oiler.

peaceful and well-disciplined instrument, consistently serves these more general foreign policy goals, and I see it as the principal maritime instrument of Soviet overseas policy.

Of course these judgments are based on past evidence, and we cannot be sure how things will develop in the future. It is clear that a policy towards the employment of forces in peacetime has been evolved progressively and, although the navy's political role stemmed from the presence in distant seas of warships which had been deployed forward in "strategic" defense, changes in threat perception, risk and opportunities mean that this role has become increasingly important. This brings us back to the question of whether the Soviet navy is still perceived as an expensive necessity, whose forces are procured exclusively for war-related tasks, or whether it is coming to be seen as a preferred instrument of policy for pursuing overseas objectives in peacetime. This is hard to answer, not least because the Soviets do not seem to have made up their minds on the matter. There is, however, some evidence that Soviet attitudes to the navy's role in war and peace may perhaps be changing, and it is to that I now turn.

Evidence that there was disagreement within the military leadership over the navy's role and the resources being allocated to naval construction surfaced in an unprecedented series of eleven articles pub-

lished under Gorshkov's name in the navy's professional journal, *Morskoy sbornik*, beginning in 1972. Entitled "Navies in War and Peace," the dominant tone of the series was defensive advocacy, which went beyond the contention that the Soviet Union needed a powerful navy, to criticizing the formulation of naval policy and the composition of the fleet. Using selective historical analysis, Gorshkov's central theme was the increasing importance of naval forces as an instrument of state policy in peacetime, and as a means of influencing the course and outcome of wars. A powerful fleet was a necessary adjunct of great power status, but this required a conscious policy regarding the role of seapower in each nation's plans. Gorshkov asserted that the Soviet Union lacked such a policy. In consequence, it had an unbalanced fleet that was deficient in surface ships, both in numbers and in the variety of different types, and the navy had been shaped too closely to a single, restrictive, and largely defensive mission. At the core of the navy's argument lay three complaints against the army-dominated military leadership: the latter was unable to grasp the significance of naval operations in a war with maritime powers; it was unable to understand the importance of general purpose surface forces, and its concept of the armed forces' "internationalist mission" in peacetime was too timid and restrictive.

Halfway through the series' publication, *Morskoy sbornik* began to encounter unprecedented delays in being released to the press by the army-controlled military censors (delays which extended into 1974), and during the same period there were major turn-overs of the journal's editorial board, which were again unprecedented. These concrete reactions, reinforced by other circumstantial evidence, confirmed the strong textual indicators that a major debate was underway, with powerful coalitions on either side. However, a compromise biased in the navy's favor appears to have been reached by mid-1974, when Marshall Grechko acknowledged that the external function of the armed forces had been expanded, and Gorshkov acknowledged that operations against land (rather than enemy fleets), now comprised the main naval mission in war, an explicit statement that the military leadership appears to have been seeking since at least 1967. Meanwhile, a significant increase in the future allocation of resources to surface warships had been approved and (presumably) the preparation of the book *The Seapower of the State* had been authorized.

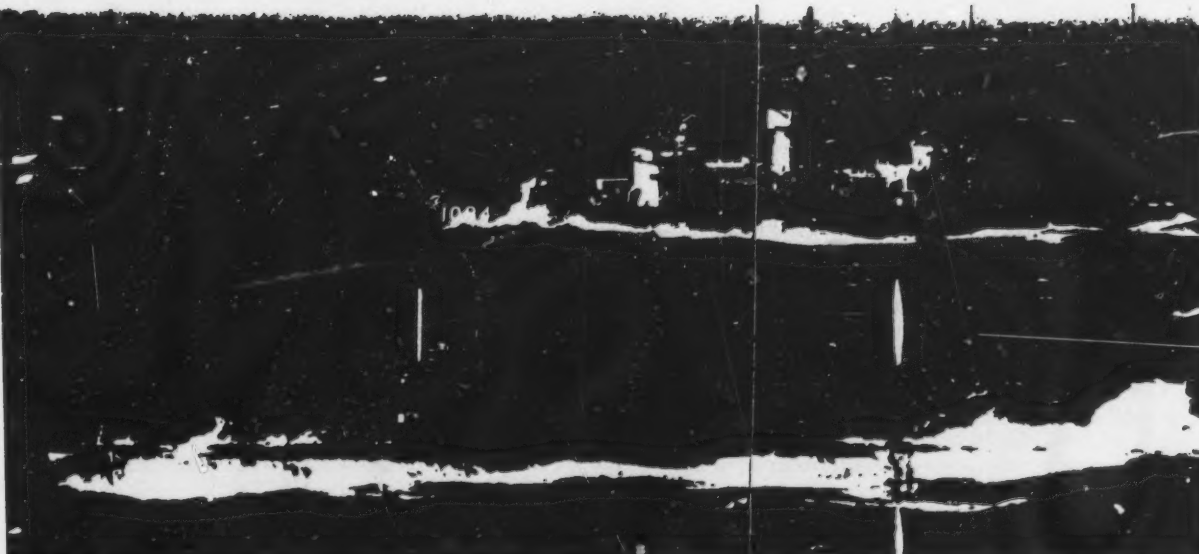
Although the book originally was not scheduled for publication until the second quarter of 1976, it appeared without warning in February, just two

weeks before the 25th Party Congress. The underlying message was much the same as the Gorshkov series, but the book's scope and structure differed considerably. It was almost three times as long, with significant additions and deletions to the original material, it was much more carefully written, and the style was less polemical. The historical analysis, which made up 80 percent of the articles and provided the basis for Gorshkov's original argument, reappeared as the second chapter (out of four), although with substantial amendments. Of the remaining two-thirds of the book, 85 percent was essentially new material, and fell into two categories. The first chapter was devoted to an extensive discussion of the importance of the ocean and of the non-military aspects of seapower, subjects which had been treated very cursorily in the articles and, unlike the latter, the chapter read as if the different sections had been written by specialists. For example, the book had almost 11,000 words on maritime transportation (compared to only 75 in the articles), and a former Minister of the Merchant Fleet was a contributing author to the book. The other two chapters focused on naval matters and comprised a not very interesting review of naval developments since World War II (Chapter 3) and a discussion of contemporary problems in naval warfare (Chapter 4). The latter included three significant items.

A new section entitled "Fleet against Fleet and Fleet against Shore" is nominally devoted to stressing the priority of naval operations against targets on land, but devotes most of its space to illustrating the importance of the traditional naval role. This is achieved first by extending the definition of fleet-against-shore to include landing operations and attacks on sea lines of communication. Next, by establishing two categories of fleet-against-fleet operations: the "pure" form intended to gain and maintain command of the sea; and those operations which are "tied to the simultaneous accomplishment of other missions." It is then shown that this second category of fleet-against-fleet, which comprises the vast bulk of naval operations, is in fact supporting operations against the shore. This allows the navy's main objective to be redefined as "securing the fulfillment of all missions related to operations against enemy land targets, and to the protection of one's own territory against attacks from his navy." This extensive definition permits full discussion of the traditional role played by navies in World War II, including the importance of carriers. And under the guise of exceptions to the general rule, this section of the book smuggles in numerous examples of traditional naval operations which have had strategic significance, or

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have even been *more* important than the battle on land.

The same general thrust can be seen in the section on the "Problems of Balancing Navies," which provides a critical analysis of great power fleet structures since 1905 in terms of their capacity to handle the unforeseen demands of war, and it is clear that Gorshkov is arguing for maximum flexibility. As in his article, he stresses the limiting effect of Germany's concentration on submarines, which was exacerbated by its failure to provide anti-ASW forces for their support, points which are very relevant to the Soviet circumstances. However, in discussing the priority given to the development of submarines and aircraft in the Soviet navy, there is a definite muting of tone in his comment on the need for "a matching development of the other arms of the navy" (especially surface forces), which presumably reflects the navy's successful battle on this issue, whereas in the articles Gorshkov was still arguing the point. This success may also explain why Gorshkov reverts to his 1967 tautological definition of "balance" as denoting the capability to carry out assigned missions in different circumstances. In the articles he saw "balance" as stemming from the *choice* of mission, which he argued should be defined in as general terms as possible, in order to exploit the navy's inherent versatility and to allow for unforeseeable developments. However, the choice of mission may now be less important, given Gorshkov's ability to redefine its meaning in terms which suit the navy's purposes, as he did with "fleet against shore."

And lastly, the section entitled "Dominance of the Sea," a concept which Gorshkov asserts is the most

"We must not allow the employment of Western forces to be inhibited by a Soviet naval presence; indeed, we should go out of our way to demonstrate the opposite." Here a diesel-electric Golf II class ballistic missile submarine is shepherded through the Danish Straits by an American frigate, the USS Pharrus (FF 1094) in 1978. For the last few years six of the Golf II class have been assigned to the Baltic Fleet.

vital in naval warfare. The discussion brings out all the classical advantages of gaining command, comes close to explicitly advocating the "pure" form of fleet-against-fleet operations, and in the process provides powerful support to the arguments in the other two sections for the continued importance of general purpose surface forces, particularly in the anti-ASW/pro-SSBN role. Gorshkov argues that the strategic significance of sea-based long-range nuclear systems makes it essential to ensure a "favorable operating regime" for ones' own forces, and asserts that undoubtedly the West will seek to gain such command for themselves at the very outbreak of war.

The book, then, is not just a simple exposé of the role of seapower in the contemporary world, but part of a continuing argument about the navy's role and the resources being allocated to it. The nub of the argument is summed up rather nicely in the "Fleet against Fleet" section, where Gorshkov criticizes Napoleon for blaming his admirals for repeated failure, whereas the fault really lay in his own "inability to make a timely analysis of the French navy's capabilities, and to use it in the struggle with the enemy." Napoleon's failure to invade England in

1805 was not due primarily to Britain's unchallenged maritime superiority but to his "one-sided strategy, which stemmed from his preoccupation with operations in the land theatres and his lack of understanding of the navy, his disregard for its capabilities in war, and as a result, his inability to use it in a struggle with a naval power, such as England was at the time." The analogy with present circumstances is striking. In Gorshkov's view, the failure of the Soviet military leadership to understand or even to analyze properly the navy's role, coupled with its prejudices concerning particular weapons and platforms, has meant that on the one hand the fleet has been configured for a relatively narrow span of specific missions, and on the other hand it lacks the full range of forces with which to discharge these missions effectively. In peacetime, this inability to comprehend the navy's potential leads to its underutilization, as an instrument of overseas policy. In a war with maritime powers, it could lead to national disaster.

This critical tone, including the pointed reference to Napoleon's failures, is preserved in the second edition of the book and is carried even further in a ten-page addition. This new section, entitled "The Strategic Employment of the Fleet" argues the importance of a country having a unified maritime strategy, and it mainly consists of a historical critique of the traditional tendency towards separate continental and maritime strategies. Gorshkov notes that the Soviet Union does have a unified strategy but it becomes clear that he is dissatisfied with its overall structure and method of application, and considers that the maritime aspects of the strategy are neither properly integrated nor given sufficient attention. Gorshkov reminds the reader that there is now no sphere of armed conflict where any one branch of service can exercise absolute sovereignty and that all military operations now involve the employment of several branches of service to achieve a common goal. Using circumlocutory language and rather obscure argumentation (p. 317, Russian edition only), he goes on to make two related proposals which can be read as criticism of the existing situation.

In one, I understand him to say that, since naval operations are becoming increasingly important and since they rely on support from other branches of service, it is therefore desirable, when considering strategic missions in oceanic theaters, to review the ways of employing *all* the armed forces and not just the navy. From his full argument I infer that Gorshkov considers that the other four branches of service give insufficient priority to naval missions when shaping their strategic concepts and employment policies, and perhaps are reluctant to subordinate

themselves to naval requirements when supporting operations in the oceanic theatres.

In the other, I understand him to say that, given the continuing growth in the role of the Soviet navy (which stems from the increasing importance of sea-based strategic nuclear systems), it is necessary to formulate a multi-faceted military strategy which will provide for the most expedient employment of all branches of service, while allowing that the relative importance of the continental and oceanic theaters may vary during the course of a war. This last point is particularly significant and, while Gorshkov is unlikely to be challenging the overriding priority accorded to the European land battle in the initial stages of war with the West, I infer that he is arguing that in other circumstances the oceanic theaters may be more important. Two come readily to mind: the initial phases of such a war in the Pacific theater; and the subsequent phases of such a war in the Atlantic theater. However, Gorshkov is flouting one of the armed forces' most basic dogmas by questioning the perennial primacy of the continental theaters of operation.

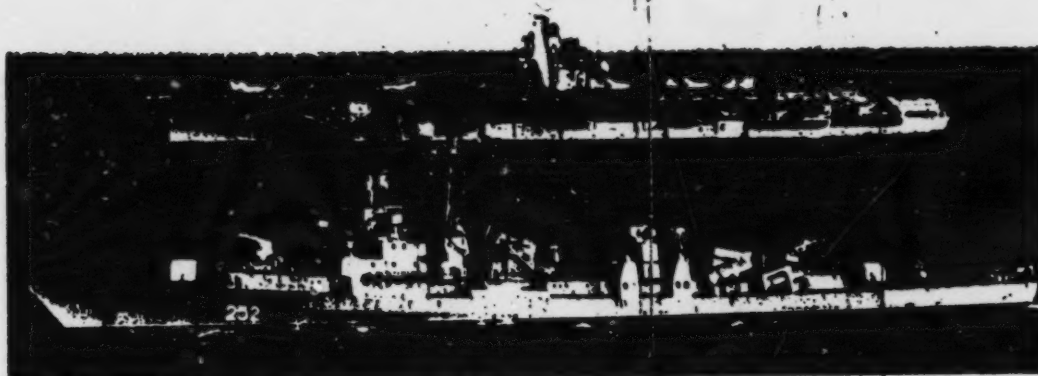
The debate continues, but if we consider where it started from, the navy has made remarkable gains. Albeit addressed to a wider audience, the navy's case was first deployed in its "own" journal during 1972-73, as some 54,000 words spread over 11 issues and 13 months. Three years later, the argument was extended, improved, and restated in a book of 151,000 words, which had an unusually large printing of 60,000 copies, and was brought out ahead of schedule to meet a political deadline. Within four years a second 60,000 copy edition had been published, which is one-eighth longer and includes a new section which extends naval claims even further. The military publishers categorized the first edition of the book as being for "the military reader", the second edition is specifically for "admirals, generals and officers of the Soviet Army and Navy." The argument evolved from defensive advocacy of the navy's role, to a more rounded discussion of the importance of the ocean and of seapower in its broader sense, to challenging the primacy of the continental theaters in war. And as a final mark of approval, three of the contributing authors were promoted between the first and second editions, two to Vice Admiral and one to Rear Admiral.

But the most persuasive evidence that Soviet attitudes to the navy's role may be changing comes from the reviews of the first edition of *The Seapower of the State*. These are exemplified by Marshal of the Soviet Union Bagramyan's comment in *Izvestiya* that "for the first time in Soviet literature, the author

formulates the concept of seapower as a scientific category." This judgment was echoed by other reviews, all of which stressed the book's contribution to military science and noted that the role of maritime power had, for the first time, been given a scientific formulation. This does not mean that all the ideas in the book have been fully accepted, but it does imply that the concept is now established in the mainstream of Soviet analytic discourse and (to quote Admiral of the Fleet Lobov), "the book will be an important source for developing a correct viewpoint of the seapower of the state." This is significant, because up to now Soviet theorists have had an ideological aversion to the concept, which they equated with Mahan, capitalism, and colonialism. Just as Keynes' "General Theory" legitimized the idea of deficit financing and induced a shift in national economic policies, so may this "scientific formulation" engender a shift in Soviet perceptions of the navy's role in war and peace.

The shipbuilding evidence and the brazenness of Gorshkov's most recent argument suggest that some

omy. If they had been carried through, they would have resulted in a task-specific, defensively oriented navy, more firmly tied to home waters than at any time in its history. The 1957-58 decisions (which were prompted by Western technological advances rather than any change in Soviet objectives), would have partially broken these ties, but only to end up with an unbalanced fleet, depending wholly on submarines and aircraft for distant operations. While it can be argued that these particular procurement decisions derived directly from the political leadership, no such defense can be offered where combat capabilities and operational readiness were concerned. Yet the shift to forward deployment seems to have come as an unwelcome surprise to the Soviet navy, which was operationally ill-prepared for the move. As late as February 1963, seven years after he had taken over as commander-in-chief of the navy, Gorshkov had to lecture the fleet on the need to get to sea and stay there, so as to develop an ocean-going all-weather capability. Writing in 1968, Gorshkov noted there had been a need to "meet the qualita-



such shift is taking place with regard to the navy's wartime role. The evidence regarding the peacetime role is much less clear, as are Gorshkov's own opinions in the matter. We should bear in mind that until the publication of his articles in 1972, there were few indications that Gorshkov was a long-standing advocate of far-flung, balanced fleets; one could well argue the reverse. Twenty-five years ago he was brought to Moscow by Khrushchev to implement decisions which were primarily designed to release resources from naval use to the civilian econ-

Soviet Military thought is focused on "the importance of getting in the first blow, should war be unavoidable." It is not surprising, then, that "in the Mediterranean the continuous-company scenario presents the Sixth Fleet with a difficult problem . . ." a point well illustrated by this 1979 view of a modified Kachin class, armed with four surface-to-surface missiles, cruising in company with the USS Saratoga (CV 60).

tively new requirements" which had involved the "organic restructuring of the navy and the reorienting of traditional naval policy." This is hardly the picture of a navy straining at some political leash which was thwarting its peacetime aspirations. It also gives the lie to self-serving claims that contemporary Soviet naval policy stems from the mid-fifties, when Gorshkov took over.

Nevertheless, in his articles Gorshkov was clearly arguing for an assertive foreign policy and for the importance of navies as an instrument of state policy in peacetime. This might seem to fit with the policy announced at the 24th Party Congress in 1971, which was amplified in the book *Military Force and International Relations* edited by V.V. Kulish, except there is a distinct difference in treatment. While not underplaying the naval contribution, Kulish discusses the role of a "Soviet Military Presence" in general terms, referring to the increased importance attached to strategic mobility, and the possible future requirements for "mobile and well trained and well equipped forces." Gorshkov places all his emphasis on the navy's unique qualifications and is at pains to point out the inherent limitations of other forms of military force in this role. We should remember, however, that one of the main purposes of his articles was to release more resources to naval construction and all arguments were grist to that mill. We do not know the exact make-up of the powerful coalition of interests which emboldened Gorshkov to make this untypical stand against agreed policy. There is, however, evidence that there was a major cleavage of opinion within the Soviet leadership at this period over foreign and defense policy questions and their impact on the domestic economy, and Gorshkov could only hope to draw support for the navy's case from the "harder" side of the debate. It may therefore be that he angled his argument regarding the navy's peacetime role in that direction.

If anything, the book can be seen as supporting this suggestion. The material from the relevant article is reproduced in heavily amended form, and the tone is less assertive. On the other hand, there is a new section devoted to Western naval involvement in "Local Wars of Imperialism." However, these two sections make up less than seven percent of the whole and in the book the navy's peacetime role gets much less prominent treatment than in the articles, the bulk of the book being devoted to war-related subjects or the non-military aspects of seapower. The latter takes up one-fifth of the book, the emphasis on marine transportation being particularly noticeable. In terms of the book's title and the place of the sea in Soviet foreign policy, it is surely significant that the

authors' collective included V.G. Bakaev, a former Minister of the Merchant Fleet.

Turning to the shipbuilding evidence, we see that there are clearly defined war-fighting requirements for all classes which are currently building or forecast. The longer range amphibious ships are configured for opposed assault in hostile waters, which argues against them having been built primarily for a peacetime role. We also have evidence which indicates that the new large carrier was justified in terms of defending the SSBN bastions and not for peacetime intervention. Writing in February 1967, Gorshkov gave the standard line of disparaging the carrier's vulnerability and reaffirming the correctness of the Soviet decision to rely on missiles. At this date, the Soviet navy had three years experience in the Mediterranean and in less than a year would be moving to the second phase of its shift to forward deployment and the greater political exploitation of naval forces in distant sea areas. But Gorshkov did not argue for a proper aircraft carrier at this time; indeed, his remarks can be interpreted as stifling suggestions in that direction. However, writing in 1972, he made no reference to the carrier's vulnerability and was silent about its contemporary tasks and capabilities; he did, though, deploy a rarely-quoted Leninist principle which argued (by implication) that since the enemy had carriers so must the Soviet Union. And this was part of the larger argument for general purpose surface forces which were needed for the defense of the SSBN bastions.

Lastly, we need to consider the Soviet Union's geostrategic circumstances. It stretches from Western Europe to Japan, borders twelve states, and another seven are directly accessible across short stretches of sea. The country spans 170° of longitude (a full 180° if we include the Warsaw Pact), and thus looks south at half the globe. About 85 percent of the world's population lives within airlift range of Soviet territory, although China blocks immediate access to Southeast Asia. Western Europe, North Africa, the Middle East, and the Indian subcontinent are all within 2,000 miles of the Soviet Union, and the territories of its national security zone are contiguous. In terms of strategic access, Russia is Mackinder's heartland, and the availability of strategic airlift, backed by merchant shipping, means that the navy's role in projecting Soviet military power is relatively less important than it is to the United States.

To sum up: Additional resources have been allocated to naval construction and there are clear indications that the Soviet leadership has accepted that the importance of the navy's role has increased significantly, both absolutely and relative to the other

branches of service, and this process may continue in future. Meanwhile, a policy for the employment of Soviet naval forces in pursuit of peacetime objectives has evolved progressively, but there is as yet no evidence that this is seen as a primary (as opposed to supporting) means of projecting Soviet power in distant parts of the globe. However, the concept of seapower has now been accepted as relevant to the Soviet Union's circumstances, and while the theoretical implications are probably still being worked out, one of the upshots in the future may be a new willingness to use Soviet naval forces to counter Western military intervention.

Having outlined the reasons underlying the development of Soviet seapower, I conclude by considering briefly some of the implications for the West. But first we must review the main naval capabilities which will face us in the years ahead.

On the submarine side, U. S. statements indicate that nuclear construction has dropped from ten to seven units a year, and that missile tubes are being removed from Yankees. This suggests that SSBN production is now running at three a year, and in measure as Deltas join the fleet, Yankees are being converted to SSN so as to remain within the SALT limit of 62 hulls. This implies that by the end of 1987 (the end of the ten-year program) the SSBN force will still stand at some 60 units carrying about 950 missiles, i.e., still within SALT I. Allowing a 25-year hull life, the Soviets may plan to stabilize their force by the end of 1992 at 75 submarines carrying 1,200 missiles.

Turning to nuclear-powered attack submarines, the Yankee conversion program will mean that seven attack units will now join the force each year, compared to about four a year during the previous decade. Assuming that the overall production of nuclear hulls remains at seven a year, this will boost the attack submarine force to about 135 nuclear-powered units by the end of 1987, reducing thereafter to stabilize at about 100 units by the end of 1992. The future of the diesel submarine force is much less clear. If current building rates continue, the force would dwindle to about 95 by the end of 1987, stabilizing at about 75 in the mid-nineties. It would, however, be prudent to assume a substantially larger number since the Soviets have the experience of higher force levels, they have spare building capacity and they could easily boost production in the years ahead. Within the Soviet concept of operations, submarines are an all-purpose defense unit and it is hard to have enough of them. Nor should we forget that the Soviet Union was tooled up to build 72

Whiskies a year in the mid-fifties, and had originally planned to build 100 submarines a year in the early sixties.

The new surface ship programs represent both an increase in the number of ocean-going warships delivered each year and in the size of the various ship types. In the past, the Soviets have been mainly successful in holding down the growth in size of successive classes, and for several decades the parameters of the main ship types have remained roughly constant, most notably the "destroyer-sized" type at about 4,000 tons and the "escort-sized" type at about 1,200 tons, and it was analytically useful to make use of these categories. However, some two or three years ago, the Soviet navy redesignated the destroyer-sized Krivak as an "escort ship" and at the same time altered the type-designation of various other classes to reflect a distinction between anti-submarine and anti-surface capabilities. Bearing in mind Gorshkov's original argument that all-purpose ships had never proved successful, plus U. S. press reports that of the two smaller new classes of cruiser, one will carry anti-surface systems and the other will be primarily ASW, it seems likely that these redesignations presaged the future structure of the fleet.

On this assumption, when looking to the nineties it is useful to think in terms of four main sizes of ship, with the type designator indicating the general role: a battlecruiser size; a cruiser size of about 12,000 tons; a destroyer size of about 8,000 tons, and an ocean-escort or frigate-size of about 3,000 tons. I assume that the battlecruiser and cruiser sizes will have a general purpose capability and that only one class of each will be built at the same time, whereas there will be at least two classes of destroyer-size ship under construction, each optimized for different aspects of maritime warfare. The destroyer-sized ships will be able to operate as fleet escorts, whereas the frigate-sized will lack the long range antisub and -surface systems required for such a role. I am not suggesting that this categorization will apply immediately, but this could be the general fleet structure by 1990, at which date the present inventory of antisubmarine and anti-surface ships will be obsolete or obsolescent, except for the Kara and Kresta II classes, both of which would be treated as destroyer-sized types.

What sort of numbers are we talking about? Counting only those ships which were built or converted after 1957, but using the former categorization of types (where the cruiser size is around the 8,000-ton mark), at the beginning of 1980 the Soviets had about 27 cruiser-size ships (Synch, Kresta, Kara), about 60 destroyer-size ships (including Krivak), and

about 100 escort-size units. They also had two modified *Strela* command cruisers and four air-capable ships (2 *Moskva* and 2 *Kiro*). By 1995, allowing a 25-year life cycle and using the new categorization, we could expect about 15 cruiser-size ships, 65 destroyer-size (including *Kara* and *Kresta II*), and 55 frigate-size ships (*Krivak* and successor). There would also be 5 battlecruiser/command ships and perhaps 7 or 8 air-capable ships, comprising 2 *Moskva*, 4 *Kiro* and 1 or 2 new type large carriers. To put it another way, every three years the Soviet navy will acquire a powerful new battle group comprising a heavily armed battlecruiser, 3 cruisers, and about 10 large destroyers. The first three or four of these battle groups will rely on a *Kiro* to provide a modicum of seabased air support, but thereafter we might expect to see one fully capable air-superiority carrier for every two battle groups.

On the land-based air side, we can expect Backfire to replace Badger as the primary strike aircraft, but it is not clear whether the naval force will remain at its present strength of about 350 aircraft. Although the navy is getting half the Backfires which enter service, the annual production rate is low and at present two old aircraft are being retired for every new delivery. On the other hand, the improved aircraft now entering service with frontal aviation make it likely that the tactical air force will take over ground targets which were formerly the responsibility of the long-range air force. This may well release additional strike aircraft for naval missions.

So much for the numbers involved, but there are implications concerning capabilities which can be drawn from the preceding analysis. First, submarine technology. The Alpha represents an important breakthrough for the Soviets, since it can go faster and dive deeper than the latest U.S. submarines, although it is still noisier. However, the wider significance of the Alpha is that it represents the first real end-product of the 1957-58 decision which singled out the submarine as the key component of the Soviet navy, with all that implies in terms of priority for research and development resources. Bearing in mind the Russians' capability for innovation and their penchant for adopting unconventional means to outflank a superior capability, we should expect the Alpha to be only the first of a series of advances, which could challenge our technological lead in the submarine field, and may also affect our future antisubmarine capabilities.

Second, nuclear propulsion. Gorshkov stressed that surface ship characteristics should provide for good seakeeping and long endurance, and long range at high speeds. If nuclear submarine construction has

dropped from ten to seven units a year, past ship-building practice would lead us to expect that the other three nuclear propulsion systems are still available to the navy. If we allow that perhaps four of these are being used for the battlecruiser program, this would leave another five systems available over three years. While we would expect the new large carrier to be nuclear powered (given the operational concept), this program was approved out-of-plan, whereas the reallocation of propulsion systems is more likely to have been part of the original plan approved in 1971. We might therefore find that the cruiser-size follow-on to *Kara* is nuclear powered.

Third, the tactical employment of ballistic missiles and the use of shore-based systems. We should pay serious attention to what the Soviets have written about the employment of ballistic missiles against ships and submarines. There tends to be substance in their technological claims, even though they often advance the claim when the capability is in sight rather than in service. It is quite likely that the Yankee was originally conceived as a tactical missile battery for use against carriers. It is quite likely that the SS-NX-13 terminally guided SLBM was shelved because of SALT and not because of insuperable technical problems. It is clear that important elements of the military leadership have always been attracted to the concept of "calling down fire" from land-based systems on naval targets, using satellite surveillance systems, or ships and submarines as forward observers. Even if the Soviets have yet to develop a fully successful system, there is every reason to suppose that they will persist in their efforts because of the operational and political advantages such a "global system" would bring.

We can now move on to the implications of this analysis in terms of general war with the Soviet Union. First, we see that their definition of world war generates massive doctrinal pressures to avoid war with the West; on the other hand, should circumstances arise where a NATO war seems absolutely inevitable, there will be equally massive doctrinal pressures to preempt, whether or not the United States has an assured second-strike capability. Meanwhile, no efforts are spared from developing the means of degrading that capability. This has focused Soviet military thought on "the initial stages of a war" and the importance of getting in the first blow, should war be unavoidable. This leads them to stress the importance of achieving surprise in as many ways as possible: technological, temporal and spatial, and through novel operational concepts and unexpected systems combinations. This is not something you dream up on the day, but something you plan

for long in advance.

A second and more tangible implication is the "Battle for the Norwegian Sea." For the Soviets, this sea area had moved from being nice-to-have to need-to-have, with all that implies in terms of military resources being allocated to seizing key islands and stretches of Norwegian coast in order to establish command at the outbreak of war. It can be assumed that the Soviets will seek to establish their defense perimeter on the G-I-UK gap and, while it will be difficult to resist the initial thrust, it would be much harder for the West to try and fight its way back once the Soviets were firmly ensconced.

Third, the Soviet requirement to protect their SSBN bastions and establish command of the outer defense zones demands a very large number of forces. It is therefore in the West's interests to sustain a sufficient level of explicit threat in those directions in order to tie down those forces. At the same time the Western alliance has to challenge any Soviet attempt to establish in peacetime implicit dominance of such sea areas as are flanked by its member nations.

And fourth, the West should look seriously at the implications of the Soviet Union's determined attempts to develop some means of countering Polaris and Poseidon. One of the reasons why the U. S. navy stayed ahead in the past was that the routine process of technological innovation often outflanked Soviet efforts to respond to the maritime threat, sometimes inadvertently. I use "outflanked" literally, since it was frequently the change in a geographically specific scenario which brought Soviet efforts to naught. But for twenty years now, the U. S. SSBN force has placed primary reliance on the concealment offered by ocean space and plans to carry on doing so for the next ten years at least. Meanwhile, the Soviets have spent the last eighteen years seeking the means of breaching that concealment, and doing the basic re-

search which may lead them to some breakthrough in non-acoustic and/or space-based methods of detection. We may be right in our judgment that the Soviets will not be able to beat the problem, but it has two snags. One is that basic research is a Soviet forte, and while they will undoubtedly have difficulty in the technological application of any theoretical breakthrough, we have not been investing in the scale of research on our side to be certain of where they are at. The other is that if our assessments of Soviet progress are wrong, by maintaining essentially the same course for thirty years or more we are making it easier for them to arrange a successful interception. One of the great attractions of deploying our SLBM in penny packets in coastal waters is that it would largely nullify a massive Soviet investment in R&D (involving four of the five branches of service), and force them to rethink their requirement to counter Western SSBN.

We now turn to the peacetime activities of Soviet naval forces in distant sea areas. The most significant development is that Soviet wartime requirements have justified the procurement of powerful new general purpose forces which will greatly increase the peacetime potential of the fleet. For the first time the Soviets are now developing a genuine worldwide naval capability. And while the concept of defended SSBN bastions will tend to work against continuous distant deployments, concern for the Chinese threat acts in the opposite direction, drawing forces into the South China Sea and the Indian Ocean. In terms of the Western response to these developments, what are the implications of the preceding analysis?

First, we would limit the forward deployment of Soviet naval forces in peacetime if we maintained an active naval presence in the outer defense zones of their SSBN bastions. At the same time we would be bolstering our allies and supporting our wartime objectives.

Second, we should exploit the fact that the peacetime role of Soviet naval forces is still in its formative stages. There is a continuing debate in Moscow on the nature of seapower and its potential role in state policy, on the value of a Soviet military presence in the pursuit of overseas objectives, and on the broader objectives of Soviet foreign policy. The nature of the West's response to Soviet initiatives



There is evidence that "nowadays the primary role of Soviet ASW forces in the Mediterranean is to protect anti-surface missile units from preemptive U. S. attack," presumably by nuclear submarines such as this one anchored by the stern at Augusta Bay on Sicily's east coast.

will be a factor in the outcome of the debate and our aim should be to reinforce those who claim that for the Soviet Union, naval forces are not the most cost-effective instrument of overseas policy, while disproving those who argue that such forces are essential to the normal pursuit of overseas objectives. Unquestionably, this will be hard to achieve, but there are three things we must certainly avoid. We must not allow the employment of Western forces to be inhibited by a Soviet naval presence; indeed, we should go out of our way to demonstrate the opposite. We must not exaggerate the scale and nature of the Soviet navy's peacetime capability; rather, we should actively publicize their operational inadequacies and materiel failures, we should highlight their limited commitment to client's interests and their narrow national security concerns. And, except in a narrow range of carefully considered circumstances, we must refrain from denying the Soviet Union maritime access to distant states; the casual use of Western naval power to prevent legitimate access by Soviet merchant ships can only reinforce the argument that a strong naval presence is required to protect the Soviet Union's state interests in peacetime.

And third, we must face up to the problem of incrementalism, or the Soviet practice of developing policy step by step. Sometimes the process is forced on them by limited resources, as in the Mediterranean deployments. In other cases, the process is deliberate, as in Cuba, where we see at one time a pier for submarines, another time a recreation field for Soviet sailors, and still another a squadron of Soviet interceptors near Havana. This can only be dealt with by deciding ahead of time where we will draw the line. To an extent, we already do this, but it seems that the contingency planning process starts too high up the crisis scale to cover the problem. We need to fill this gap between the Soviet navy's routine activities and the scenarios underlying our contingency plans. Besides allowing us to work out the appropriate responses ahead of time, this would highlight the longer-term consequences of allowing Soviet naval forces to establish apparently innocuous precedents. The Soviets are well aware that the West's interest in the use of the sea is of a different order to their own. They are very conscious of our worldwide maritime preponderance. They also understand toughness. The question is, when and where we draw the line. However, for such a policy to be successful, the line must reflect a substantive Western interest (as opposed to passing political petulance), and the Soviet Union must be made aware ahead of time, where the line has been drawn.

Finally, we must look at the implications of the

preceding analysis in terms of arms control as a means of increasing Western security. One of the lessons we can draw from the past 25 years is that when we devise new ways to discomfort the Soviets in war, or to deter them from attacking us in peacetime, attention must be given to the response it will evoke. For example, it is questionable whether the additional security provided us by the Polaris-Poseidon system compensates for the practical disadvantages arising from the Soviet navy's shift to forward deployment. Similarly, the Soviet response to the threat to their own SSBN force has been to shift resources into building powerful general purpose surface forces which will result in a genuine worldwide naval capability which may well discomfort us in the years ahead. Looking to the future, we need to ask ourselves what the Soviet response would be if we introduced the strategic version of the Tomahawk cruise missile to the fleet, and whether that would be to our long-term advantage.

But the arms control implications of the analysis go beyond these peacetime inconveniences to the more fundamental questions of threat perceptions and the likelihood of war. For some time there had been a growing disjunction between the very high nuclear inventories on both sides and the level of middle-of-the-road threat assessments. As the arms buildup continued, this disjunction became increasingly hard to bridge and the last few years have seen a steady upward shift in threat perceptions, even though the objective circumstances governing intentions have not changed. On the Soviet side, a major engine of the arms buildup is their war-fighting doctrine. On the U. S. side, a second-strike doctrine requires a matching response and meanwhile, as threat perceptions have risen, so has there been a movement towards an increased war-fighting capability. The cycle continues and, as threat perceptions are drawn inexorably upwards, it becomes more difficult to apply controls to the arms procurement process.

One means of breaking this cycle is to engender a shift from war-fighting doctrines to policies of mutual deterrence. The West has some leverage in this direction, which stems from the importance of sea-based nuclear strike systems as strategic reserves in a world war. In the post-exchange phase the Trident SSBN, with its autonomous capability and 240 nuclear warheads, becomes the war-fighting machine *par excellence*. If this same missile capability were deployed in spartan diesel submarines which were operationally tethered to U. S. home waters, it would provide unambiguous evidence that the U. S. was discounting war-fighting as a strategic option. More important, it would effect the kind of fundamental

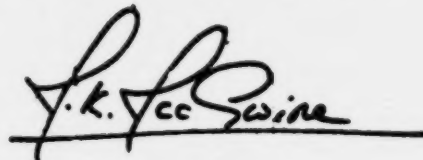
change in the situation which would force the Soviet leadership to review their policies and programs for countering Polaris and Trident, and to make new decisions. The need to start again from the beginning, coupled with the even greater difficulties of developing a counter to the spartan SLBM system, would reinforce the case of those in the Kremlin who argue that it is time for the Soviet Union to adopt a posture vis à vis the West of mutual deterrence based on MAD, and to play down the requirement to fight a general war. It is at this stage, when new alignments are formed and Soviet policy is in a state of flux, that further proposals for naval arms control (involving both sides' SSN and the security of the bastions) could shape the final outcome. While important in their own right, such measures could provide the catalyst needed to break the arms race cycle and open up new opportunities for arms control in other fields, including land-based "strategic" weapons.

We have, however, been discussing what could be rather than what is likely, and despite current talk about small coastal systems, U. S. domestic factors would prevent any such political initiative in the foreseeable future. This is unfortunate because developments in East-West relations over the last few years evoke disturbing echoes of the 1960-61 period, in terms of their impact on Soviet weapons procurement decisions. From the Soviet standpoint, things were not going particularly well before 1979, but last year was an especially bad one, which saw a growing rapprochement between China and America, increased defense spending throughout the West, "provocations" over troops in Cuba, stalling of SALT in Congress, the threat of new U. S. strategic systems, and a commitment to upgrade NATO's theater missile force with weapons which will target Soviet territory and reduce strategic warning time to a few minutes. And then, to cap it all, came Afghanistan, a major setback to the Soviet Union's broader foreign policy objectives, which also served to rekindle the crusading rhetoric of the Kennedy era.

We can therefore assume that as the Soviets finalize the details of the 11th Five Year Plan for presentation to the Party Congress next spring, worst-case assumptions will hold the field and, despite the growing competition for investment funds to develop key sectors of the domestic economy, defense procurement may well increase. Given the recent additions to the surface warship program, naval procurement is less likely to be affected than the strategic rocket and air defense forces, despite the fact that there is probably some slack in naval building capacity, and of course, additional facilities can be diverted from civilian ship construction. How-

ever, while the delivery rates may remain unchanged during the next decade, the tough-minded decision-making climate may be favorable to incorporating improved characteristics (such as nuclear propulsion in surface ships), and the ratchet effect, which is present both in arms racing and in the Soviet planning process, may ensure that such systems will continue to be provided in the future.

Given these circumstances, the West has no option but to gird itself for a sustained, if low key naval buildup. We are faced by a substantial increase in the allocation of resources to Soviet surface ship construction, in part through the five-year planning process, in part through an out-of-plan addition, which not only increases the annual delivery rate and tonnage, but introduces powerful new types of ships into service. Besides this practical recognition of increased naval requirements, there is a new theoretical acceptance of the concept of seapower and its relevance to the Soviet Union in war and peace. And finally, we are faced with a period of revived East-West antagonism, which is likely to be characterized by increasing military intransigence. Respond we must, but it needs to be a measured response, and we should not allow ourselves to be mesmerized by the new surface programs. The Soviets continually stress that the submarine force is the primary arm of the fleet, an assessment we should heed, and we should also concern ourselves with the threat from land- and space-based global systems. The response should be measured because we do not wish to encourage naval confrontation in all corners of the globe. We should avoid the rhetoric of an arms race and as we build up our forces, we should talk in terms of arming to parley.



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European Naval Trends, Policy, and Hardware

by Capt. Leon "Red" Smith, USN-Ret.

The removal of France's military and naval forces from the NATO chain of command in 1966 has not resulted in a mid-continent gap, as might have been expected by some—a fact that doubtlessly chagrins the Warsaw Pact. Far from dissolution and disarray, European NATO naval forces, including the French Navy, are increasingly able to communicate and operate with common signals and tactics.

Although anything resembling stan-

tototype of a *Eurocar*, and you will get four dissimilar designs—each acceptable, but each recognizably British, German, French, or Italian. So, more or less, it goes with naval forces, with the inevitable exceptions.

The third factor shaping Europe's navies is their unique missions. Is the mission of the navy to fight mainly in the Atlantic Ocean with some missions in the Mediterranean Sea, as is the case with France and Spain? Is it mainly to

dardization among European navies remains an elusive goal in many ways, a strong case can be made for good progress, especially in the areas of fire-control systems, antiship and anti-aircraft missiles, dual purpose guns, and even submarines.

After some three decades, this ought to have resulted in a recognizable European naval portrait, right? Answer: mostly wrong.

What shapes European navies?

National employment (the opposite of the Two-Way Street) plays a major role. Not every European navy insists on buying everything from its own manufacturers, to be sure. Norway, for example, is buying some new submarines from the Federal Republic of Germany (FRG) while it is supplying Hugin-class, Penguin anti-air missile-carrying fast patrol boats to Sweden. Nonetheless, any western European government which puts national employment in peacetime in a secondary position to other honorable goals it perceives will soon be in the political dustbin.

National or cultural design idiosyncracies also play a major role. Tell a British, German, French, or Italian automobile designer to provide the pro-

operate in the Mediterranean, as it is with Italy, Greece, and Turkey? What about the geography involved? A Norwegian naval source told *AFJ* he compared his navy's task with that of defense of the California coastline if it had to be defended by a state with the resources of Maryland.

There is, therefore, a recognizable trend in European navies of ambivalence: "We'll do the best we can with what we have," all the while acknowledging that it almost certainly won't be good enough.

Some European navies do not have integral naval air arms. Even with those that do, the role and mission of the navy, in contrast to that of the national air force, can markedly affect the policy and hardware of that navy.

Eighteen years ago, in 1966, the then-Labour government of the UK decided to withdraw from foreign commitments, retreating, so to speak, to the European theater. Under this scheme, the Royal Air Force (RAF) was to provide air cover for the fleet. Meanwhile the Royal Navy (RN) would, over time, rid itself of aircraft carriers. Apparent to naval professionals, if not to the man in the street, this meant the fleet would lose its airborne

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early-warning capability as well as its fighters and attack aircraft for self-protection and force projection. The eventual outcome of these roles and missions policy-making decisions by British politicians and technocrats, given the Falklands experience, remains at present unclear.

The fallout from the UK-Argentine conflict provides a convenient focus for reassessing European naval trends. Given this first use of a modern sea-skimming antiship missile in a successful attack on a relatively new warship, was there a rush for European navies to acquire antiship missiles? Was there a concomitant rush to acquire or enhance existing antiship missile defense systems? Was naval damage-control equipment and training affected to any significant extent in European navies by the loss of the 4,000-ton HMS *Sheffield* to one 165-kg warhead of an Aerospatiale AM-39 Exocet missile? Or is it now business as usual?

Norwegian Navy

Norway is the northernmost country of NATO Europe and, as a centuries-old seafaring nation, is a natural region to begin a review of naval trends, policy, and hardware. Leaving aside hardware for the moment, nothing much has changed in the trends and policy department in the past 20 years, except in 1977, when Norway established its 200-nm "economic zone." Two decades ago the mission of the Royal Norwegian

Navy (RNN) was established as:

- Anti-invasion defense of Norway;
- Protection of local sea-lanes of communication along 1,500 miles of coast and fjords (the problem here is that those deep fjords transform a 1,500-mile "straight line" coast into an actual 12,000 miles of coast);

- Readiness to accept Allied reinforcements.

The RNN consists of 15 German-built conventional diesel submarines, about 40 fast missile-and-gun patrol boats, five frigates, two corvettes, two minelayers, 10 minesweepers, and a small number of landing craft. The Norwegian Coast

Guard, consisting of six cutters and some 10 trawlers, is integrated into the navy and includes three large 3,200-ton cutters, commissioned in 1981, each carrying a British Westland Sea Lynx helicopter.

The impact of the use of the antiship missile in the Falklands has not caused any serious change in the Norwegian navy, according to a Norwegian naval officer *AFJ* queried. On the contrary, the Falklands conflict confirmed that the navy was on the correct course. The bulk of RNN units, including submarines, are light, small, and do not furnish attractive targets for antiship missile attacks.

The Norwegian firm of A/S Kongs-

berg Vapenfabrik began making Penguin antiship missiles in 1970, following research by the RNN in the 1960s. Thus, neither the threat posed by antiship missiles nor the appropriate defenses came as any surprise. Penguin is now in use with the Norwegian, Swedish, Turkish, and Greek navies and is being modified for use on Norwegian F-16 aircraft. Kongsberg and Grumman signed an agreement last year under which Grumman will help Kongsberg market Penguin in the US. The US Navy is reportedly considering using Penguin on its Sikorsky LAMPS III helicopters that carry only antisubmarine weapons. The RNN has no plans to acquire nuclear-powered submarines.

Six new Type 210 submarines were ordered in 1982 from the West German Thyssen shipbuilders, with the first to enter service in 1987. These conventional, diesel-electric boats will have eight bow torpedo tubes, twice the number of the Kobben-class, also bought from West Germany in 1964-1967. The Norwegians regard the new 210-class boats as an important anti-invasion weapon able to attack both surface ships and other submarines. They are quiet and thus harder

to detect than larger submarines.

Two factors or conditions peculiar to Norway continue to influence Norwegian naval thought and directions.

Norway's territorial waters—including coasts, islands, and fjords—are more or less constantly being tested by foreign submarines, presumably for possible bas-

ing in wartime. Last May the Royal Ministry of Defense said that in the 14-year period 1969-1982, 226 observations/contacts of submarines and submarine-like objects were made. Of these, only a handful were eventually classified as *certain* submarines. A somewhat larger number (10-20) were classified as

probable submarines. But the RNN knows very well it is being tested.

The second factor is Norway's need to protect its North Sea oil and gas reserves. With five fields in production and another five under development, oil/gas production now amounts to about 15% of Norway's Gross National Product and rep-

resents about 31% of total exports. The relatively small RNN cannot protect these assets alone. The air force helps with this with its F-16s, and its P-3 Orion surveillance aircraft, both of which will be fitted with Penguin antiship missiles. But it's a constant concern.

Federal German Navy

The three specialties of the Federal German Navy (FGN) are submarines, fast patrol boats, and mine-countermeasure craft. This is not to ignore its frigates, destroyers, and naval air arm. The navy is by far the smallest of West Germany's three federal armed forces, with a 38,000 man total complement.

They man about 200 ships/craft, including 24 submarines, 100 fighter

bomber aircraft, 19 antisubmarine and maritime patrol aircraft, and more than 20 helicopters, of which 12 are ship-based. Three of seven destroyers are American-built Charles F. Adams-class, now due for mid-life modernization.

The FGN's wartime mission directly shapes its current and future makeup and is best described in geographical terms vis-à-vis the Warsaw Pact:

- *in the Baltic Sea*, to degrade Pact offensive capability, to impede its use of the Baltic, and to contain its forces;
- *in the Baltic approaches*, to ward off attacks on the coast and to deny enemy use of sea routes between the Baltic and the North Sea;
- *in the North Sea*, to deny the Pact the use of sea routes between the Baltic and the Atlantic, to ward off attacks on the coast, and to protect Allied resupply of Europe.

All that translates in the Baltic into conventional diesel-electric submarines, multi-role fast patrol craft, and the naval air arm. In the Baltic approaches, the FGN maintains its version of the attack aircraft carrier, namely its naval air station in Schleswig-Holstein. A high FGN source told *AFJ*: "I am often asked why the German Navy doesn't have an aircraft carrier. The answer is: with Schleswig-Holstein and the relatively long legs of our naval aircraft, we don't need one."

The FGN wants to maintain the balance it believes it has now between attack and defense. With respect to hardware, this means modernization or

replacement of older equipment but, in contrast to the situation in Norway, there appears somewhat more reason for optimism. Examples:

- The aging Lockheed F-104 G Starfighter fighter-bombers are being replaced with 112 Tornados, the first of which were delivered in July 1982. Both aircraft now carry the MBB-built Kormoran I antiship missile. Beginning in 1987, Tornado will carry the longer range Kormoran II, which is more resistant to electronic countermeasures.
- West Germany was the first of the Panavia Tornado partners (Aeritalia, British Aerospace, and Messerschmitt-Boelkow-Blohm) to assign a 48-aircraft Tornado unit to NATO. This happened on January 1st with the FGN's No. 1 Wing operating from its "aircraft carrier" at Schleswig-Holstein.

- The West German navy will replace its 12 shipborne Lynxes and 22 Sea King search-and-rescue helicopters with new "Helicopter 90s" that will be multi-role—transport, rescue, antisubmarine, and as a platform for the new ANS supersonic antiship missile being developed by Aerospatiale and MBB. The Helicopter 90 program will increase the total of FGN helicopters to 62.

- The FGN also plans to modernize some of its Sea Kings to fill an "over-the-horizon" (OTH) role and may arm them until "Helicopter 90" comes on board. West German naval sources tell *AFJ* that collaboration between fast patrol boats and helicopters for OTH targeting has been successfully tested in the Mediterranean.

- Twelve of 18 Type 206 submarines will be modernized during the late 1980s.

- Starting in 1987, the FGN plans to procure 18 Maritime Patrol Aircraft (now called MPA 90) for ASW and long-range reconnaissance to replace its fleet of French-built Dassault Breguet Atlantics. This will be an off-the-shelf procurement with the Dassault Breguet Atlantic New Generation (ANG) and the Lockheed P-3 Orion currently mentioned as candidates.

The West German navy takes special pride in its submarines. Before the century is out, the FGN expects to have perfected a propulsion system whose battery technology will free conventionally-powered submarines from dependence on the atmosphere. That is, they will not

have to expose themselves even to snorkel. The FGN did not invent fast patrol craft, but it believes in them, uses them, and sells them.

With a relatively short coastline, West Germany's navy concluded that the fast attack craft plays a major surface role. German builders of fast patrol boats include Kroger, Roland Werft, Rendsburg, Lurssen and Vegesack. The FGN concluded that a boat of 400-450 tons was required in order to carry a bigger weapon load combined with heavy fire-control systems, to accommodate a two-watch system, and to carry sufficient fuel for greater endurance at sea. These characteristics suit it for FGN's multi-role mission. The FGN tells *AFJ* that its German-built fast attack craft represent a choice of quality over quantity and have a good chance of surviving against an air or sea skimmer missile threat.

The West German navy's third specialty is mine countermeasure vessels (MCMV). A new generation of vessels is replacing its present fleet. While the old craft—some of which have now more than 25 years of service—are all made of wood, two types of material offer an alternative. They are glass-reinforced-plastic (GRP) and non-magnetic steel (NM-steel). The builder has not yet been selected but could include Burmester of Bremen in addition to the fast patrol ship builders. What is sure now is that the hull material will be NM-steel.

Royal Danish Navy

Denmark has a small navy made up of a squadron of surface escorts (two frigates and three corvettes), eight patrol boats, a fast attack squadron of 16 boats, (10 of which carry McDonnell Douglas Harpoon surface-to-surface missiles), a mine squadron of seven minelayers and eight minesweepers, as well as a fishery protection squadron of five boats equipped with British Westland Lynx helicopters. Danish defense officials told *AFJ* that the Danish air force had center stage this year because the F-16 was an expensive airplane. "The navy's turn might come next year."

In the 1970s, Denmark decided that army modernization would have funding priority one year, navy modernization the next, etc. Largely because its F-16 program was costed in dollars at a time when the dollar grew in strength relative to all European currencies, the Danish air force F-16 modernization program proved far more costly than originally expected. But that funding peak has now passed.

The big issue for the Royal Danish Navy is not so much military as political. Currently Denmark has a small quantity of conventional diesel-electric submarines that it operates for its own use and in concert with the FRG in the Baltic Sea. The question raised on the political scene is whether Denmark

should continue to have submarines. Its existing West German-built inventory ought to be replaced, but some Danish politicians believe the Danish defense budget cannot support this and that the submarine force ought to be done away with. But, while Danish naval sources say there is no doubt that submarines ought to be retained and replaced with new ones, a new defense policy is pending which could eliminate submarines from the Danish navy altogether. This is the major Danish naval issue: "to be or not to be" in the submarine business. This decision, *AFJ* is told, could be made in mid-1984.

French Navy

When a high French naval source tells you his navy is in favor of "standardization," listen. He is not swearing his allegiance to Motherhood. Chances are he is about to explain how the French Navy has standardized its submarine, aircraft, and surface ships within the navy and with the army and air force.

Any sailor knows, and any visitor to a naval warship will observe, that ships

seem to be held together not so much by steel plates as by cables. In larger ships, miles of cables connect everything to everything else. Whereas other navies have studied the problem, the French Navy has adopted standardization and is well along in its implementation. One of the things it has standardized is doing away with cables. Instead of point-to-point cabling, a "serial data bus" is used to which displays, computers, consoles, and other equipment are "connected."

A new ballistic-missile submarine (SSBN), for instance, uses only six such buses. The standardization concept has been adopted for submarines, surface ships, and aircraft. There is one standard family of computers with two standard displays, one for submarines and one for surface ships. High level French naval sources told *AFJ* that this new architecture is unmatched in other Western navies and is a result of decisions taken in 1975 now bearing fruit.

The standard computer comes from

the French Army (not the one used in the Rita battlefield communications systems [Dec, Feb *AFJ*], but a later one that will be retrofitted into Rita). The data bus came from the French Air Force. Thus, the architecture is not only standard (or in process) in the navy but also in the army and air force. Eliminating cables will save both weight and money, will facilitate new ship design, and decrease training requirements.

Unfortunately, the US Navy is still fumbling around with this innovation. ("Navy Hopes to Eliminate 25-50% of Wiring and Cables in Ships," Jul 1978 *AFJ*.)

Senior French naval sources told *AFJ* how this quiet standardization revolution was carried out in nine-10 years. They say that both the operators and technicians saw the major advantages of cable reduction and management by microprocessors. As new computers, consoles, and other equipment become available, they can be accommodated in existing buses, without recabling or rewiring the ship. The transfiguration was assisted by the existence of a single French procurement agency, the *Délégation générale pour l'Armement* (DGA).

France has modernized its three government-owned shipyards and is keeping them busy with new ship construction. The yards are at Cherbourg (submarines), Brest (aircraft carriers), and Lorient (destroyers, corvettes). The government has recognized the need to increase productivity. This does not mean hanging up posters. It does mean spending money on new equipment, so that with the same or smaller labor forces, the French Navy gets a bigger bang for the franc. But, according to French sources, these yards are useless unless French ships can enter or exit them in time of emergency or war. Thus, the French Navy treats mine warfare seriously. Among other things, this has resulted in the construction of a glass-reinforced-plastic hull Tripartite Minehunter Ship (with Belgium and the Netherlands).

French naval policy is to maintain two aircraft carriers for power projection. Nothing in the recent Lebanon operations has changed this. *Au contraire*, the ability of the French Navy to launch its Super Etendard, even once, according to French naval sources, underscored the value of the attack carrier (CVA). Therefore, plans are to lay the keel in 1988-89 for a 35,000-ton nuclear CVA. This newly-designed CVA will take advantage of the standardized data bus system already mentioned.

No discussion of the French military situation, including naval policy, would be complete without mention of the independent French naval strategic nuclear force—the nuclear-powered ballistic missile submarines (SSBN), of which France now has five.

In the previous government, two or

three SSBNs were at sea continuously. The government of President Mitterrand has changed this. The Mitterrand government has increased the number of SSBNs at sea continuously to three. To keep three of the five at sea means massive new procedures and longer work-hours at shipyards, longer patrols for the submarine crews, and shorter in-port periods for each SSBN. The burden will be relieved by the addition of a sixth SSBN now under construction. It will enter service in 1985. A seventh will begin construction in 1988.

Royal Navy of the United Kingdom

The UK was the first Western country to use its naval forces successfully to project its national will since WW II. Nonetheless, it is fair to ask the Royal Navy (RN) what it is doing differently, if at all, *après* Falklands.

The last major review of UK defense policy was conducted by then-Secretary of State for Defense, John Nott, in 1982.

His study and subsequent annual British White Papers state that RN priorities include:

- Commitment to the maintenance of strong and flexible naval forces in NATO's Eastern Atlantic and Channel regions, in addition to a worldwide British deployment capability;
- Two operational aircraft carriers, with a third in reserve;

(In 1982, during the Falklands emergency, the second ASW carrier, HMS *Illustrious*, entered service. Her sister-ship, HMS *Invincible*, was already in commission and served in the Falklands campaign. The third, HMS *Ark Royal*, is under construction, and HMS *Hermes*, now being decommissioned, filled in as the Falklands flag ship.)

- A force of over a dozen nuclear-powered killer submarines;
- A front-line force of destroyers and frigates (now standing at 59. *AFJ* was told by RN sources that this number can be expected to decline to about 50.);
- A new military communications satellite. (The first is expected to be launched in 1985 and should significantly enhance British maritime communications.)

AFJ asked senior Royal Navy sources to comment on airborne early warning (AEW). It is safe to assume that in UK home waters, AEW will be available. But what happens outside UK home waters? The UK cannot afford a US-style, AEW system, but a variant of the Nimrod "Search Water" radar has been fitted to the Sea King helicopter. Each ASW carrier air group will have two-to-four of these helicopters to furnish a self-defense AEW capability.

Italian Navy

Italy is one of the NATO navies that supports a naval air arm. The Italian Navy also has 10 submarines and a strong surface force including missile cruisers and destroyers. Non-nationalistic in its procurement policies, its naval equipment includes the French AS-12 air-to-surface missile, the Swiss 35 mm Oerlikon gun, the Italian OTO Melara 90 caliber gun, the Swedish Bofors/Italian Breda 70 caliber gun, the 76 mm and 127 mm OTO Melara guns, and the Italian/French Otomat Mk II sea-skimmer antiship missile.

Of the missile cruisers, one, *Giuseppe Garibaldi*, is essentially a helicopter aircraft carrier/combat cruiser roughly similar to the British *Invincible*-class. Equipped with four Otomat antiship missiles and an aircraft capacity for either 12 Sea King SH-3D helicopters or one Sea King and 10 Sea Harriers, it packs punch. The other two missile cruisers carry surface-to-surface, surface-to-air, and antisubmarine missiles and up to nine Augusta AB-212 helicopters or four of the larger SH-3D Sea Kings.

Royal Netherlands Navy

NATO is the only reason for the existence of the Dutch Navy, Dutch naval sources told *AFJ*. Both the government and people of the Netherlands believe in NATO. The proof of this is the size of their navy. Since the Dutch no longer have colonies, its 68-ship navy would not be justified for the maritime protection of this relatively small country. The Netherlands navy includes six attack conventional submarines, two guided missile destroyers, 16 frigates, six corvettes, six aging patrol boats (only two of which are in regular service), and an impressive force of minesweepers, mine-layers, and minehunters of varying ages. The navy's mission is to augment NATO forces in ASW and in sea control. It is one of four countries that contribute commanders to the Standing Naval Force Atlantic (the others being the US, UK, and Canada). A notable trend is the widespread use of helicopters, in this case the Westland WG-13 Lynx, on all except the oldest Dutch warships.

The majority of the navy's combat equipment is, of course, from the well-known Dutch firm of Hollandse Signaalapparaten (HSA). Aside from that, the Dutch navy includes 120 mm and 40 mm Swedish Bofors guns, Canadian sonars, Italian anti-aircraft guns (the well-known OTO Melara 76 mm), American Aerojet Mk-46 torpedoes (surface- and air-launched), Lockheed P-3C Orion maritime patrol aircraft, and large numbers of McDonnell Douglas Harpoon antiship missiles.

Holland is known for the high quality of its maritime construction. Its Kortenaer-class frigates, built by Royal Schelde Naval Shipbuilding, have been bought by or adapted for the Netherlands, Greece, West Germany, Portugal, and Morocco (Dec *AFJ*).

The Dutch navy has undertaken an experiment in reduced manning that is worth watching. Manning ships is a major element of life-cycle cost. Hence a program has been introduced to reduce manning to the lowest possible level. Probably American naval personnel offices would counter this by saying it's *supposed* to be as low as possible in the first place. But that isn't what the Dutch are doing. Their navy has reduced the traditional three-watch system for peacetime steaming to two watches with an accompanying cut in the ship's complement. As much as possible, maintenance is done in port by additional shore-based people.

This personnel policy is now reflected in plans for a new M (for "modern") frigate. This program involves four ships, and long-lead items are already under contract with an option for four more. These ships will be built with low manning in mind, but are nevertheless intended for use in the North Atlantic, perhaps the roughest waters in the world.

"Goalkeeper" is probably the most interesting new piece of Dutch naval hardware. It is a highly accurate, rapid-fire (4,200 rounds per minute), close-in defense system against antiship missiles developed by the Dutch HSA in partnership with General Electric. Featuring six 30 mm GE guns, it has been adapted for the Dutch navy. Commercial efforts around the world are underway to convince other navies, including the USN, to adopt it. An "intra-European Two-Way Street" of sorts is the Dutch adoption of British Rolls-Royce engines for

its new frigates in return for the Royal Navy's agreement to purchase six Goal-keepers, with options for more.

Belgian Navy

Belgian naval spokesmen told *AFJ* there is nothing much new in trends of policy in the Belgian Navy. Its two main missions are interrelated:

- To protect its merchant marine in the North Sea and North Sea approaches;
- To conduct mine operations (sweeping and hunting) in the same waters.

Aside from four frigates (for the merchant marine protection mission), the remainder of the small Belgian Navy (4,600 people and about 31 ships) consists of minecraft of various types.

Royal Spanish Navy

Spanish naval sources were cautious with *AFJ* in discussing trends and policies in the Spanish navy, for the excellent reason that the future—NATO-wise—remains a bit clouded. Spain is a member of NATO, but the Spanish military, including its navy, is not yet integrated into the NATO command structure. Spain's Prime Minister has announced a referendum on Spain's continued membership in NATO, although there is no date set for the vote. Sources tell *AFJ* it could be as late as the latter part of 1985. Until then, any formal association of the Spanish Navy will remain, as engineers say, on "top dead center."

The Spanish navy has exercised with NATO navies, including the USN, since the mid-Fifties; thus a decision to integrate into the NATO naval structure would not be a problem.

Spain is a major maritime nation and shipbuilder. Spain builds ships to its own design as well as to those of other countries, including the US. It is building an aircraft carrier now, to be completed in mid-1986, that will carry the British Aerospace/McDonnell Douglas Harrier AV-8B, the Sikorsky SH-60B LAMPS III, and Sikorsky's SH-3D Sea King as well as the Agusta Bell 212 helicopter. Until the *Principe de Asturias*, joins the Spanish fleet, the American-built *Dedalo*

(ex-light aircraft carrier *Cabot* built in 1943) does the job. *Dedalo*, Spanish naval sources tell *AFJ*, may be retained after (Cont. p. 109.)

The Spanish carrier *Principe De Asturias*, is scheduled to join the fleet in 1986.

Europe's Navies

(Continued from page 87.)

1986 for training purposes.

Also being built in Spain to American design are three FFG-7 frigates with probably two more after that. The ultimate plan is to create a combat group in the Royal Spanish Navy that will be made up of the new carrier plus 10 frigates. The 10 frigates will be the five FFG-7s, all new, plus five older (early 1970s) frigates, again of American design, built in Spain.

An unsettled question concerns Spain's acquisition of the American SQS-19 towed-array sonar. The new FFG-7 frigates, now building, plus the Sikorsky SH-60B LAMPS III helicopter and the SQS-19, operate together as a system. To change the SQS-19 to some other sonar at this point would be very costly, Spanish naval sources told *AFJ*. Moreover, a letter of offer to buy the SQS-19 had been accepted and a con-

tract signed by the US Navy when an amendment to the 1984 DoD Appropriations bill, said to be principally the work of Rep. Joseph Addabbo (D-NY), Chairman of the House Appropriations Defense Subcommittee, included language that "prohibits funds for the sale of or otherwise providing the SQS-19 towed-array sonar to a foreign country." Spanish naval sources told *AFJ* they are still hoping for a reversal of this edict.

The Spanish navy retains an amphibious capability, including helicopters and craft, to land a reinforced marine corps battalion. In addition, it has a good-sized, 37 ship mine "force" as well as seven submarines, largely Spanish-built to French design. Spain also owns 11 Hughes Helicopters 500-MDs, reconfigured for an antisubmarine warfare role.

The Spanish navy considers itself an Atlantic Ocean force. Its long Mediterranean coast does not change Spain's view that defense of the Mediterranean is the concern, mainly, of other countries. The Royal Spanish Navy now, and, its spokesmen say, in the future, looks to the Atlantic with its sea-lanes to Africa and the Americas, as its major area of operations.

Portuguese Navy

Although there are more than 350 merchant ships flying the Portuguese flag, the Portuguese Navy is tiny. In common with many NATO navies, it has a submarine force but it consists of only three French-built Daphne-class subs placed in service 1967-1969. It has no naval air arm. Of its seven frigates, four are French-built and three are Spanish-built to American design. All date from the late 1960s.

The remainder of the Portuguese Navy consists of 10 corvettes, 17 patrol boats, and four minesweepers. Of the 10 Spanish-built corvettes, four have been in service about 10 years with the remaining six older by four-to-five years.

The problem of the Portuguese Navy is under-funding, but Portugal is modernizing its fleet with three new frigates based on the Dutch Kortenaer-class, six corvettes, and a new class of mine vessels.

Turkish Navy

Turkey has a good-sized Navy, much of it ex-USN, hence old. It maintains a submarine fleet of 15 boats, of which five are German-built and relatively new (1975-1981). Another is being delivered. The remainder are ex-American and range in age from old (1960s) to very old (1940s). Its 16 destroyers, including a destroyer minelayer, are also ex-American, modernized some years ago in the US but originally built for WW II and subsequently transferred to Turkey.

Frigates (three) are a different story. These are modern, German-built, and

Star Status

PATRICK, Burton D. Major General	Dep Chf, Leg Liaison, Ofc Sec Army Wash, DC	Chf, Leg Liaison, Ofc Sec Army, Wash, DC
PEIXOTTO, Ernest D. Lieutenant General	Comptroller of the Army, USA, Wash, DC	To Retire July 31st
PRILLAMAN, Richard L. Lieutenant General	Dir for Ops, J-3, Org JCS, Wash, DC	To Retire June 30th
PRICE, Roger J. Brigadier General	CG, 1st Inftry Div (Forward), Geopingen, Germany, APO New York	DCS, Resource Mngmnt, USAEUR and Seventh Army, Heidelberg
REGISTER, Benjamin F., Jr. Major General	Dep Dir, Def Log Agcy, Alex, VA	DCS for Log, USA, Wash, DC, and promoted to Lieutenant General
ROCHE, William H. Brigadier General	Spec Asst of the Chf, Leg Liaison, Ofc Sec Army, Wash, DC	Dep Chf, Leg Liaison, Ofc Sec Army, Wash, DC
ROSENBLUM, Donald E. Lieutenant General	CG, First USA, Ft. George G. Meade, MD	To Retire August 31st
SCHOLTES, Richard A. Major General	Cmdr, Jt Spec Ops Cmd, Ft. Bragg, NC	CG, 2d Armored Div, Ft. Hood, TX
STILLIONS, Eugene L., Jr. Major General	Spec Asst to the CG, USA Log Ctr, Ft. Lee, VA	CG, USA Quartermaster Ctr and Ft. Lee, Ft. Lee, VA
SWEET, William E. Major General	CG, 56th Field Artillery Brigade, Schwaebisch Gmuend, Germany, APO New York	Dir, Human Resources Dev, Ofc DCS for Persnl, Wash, DC
TAIT, Thomas H. Brigadier General	Asst Div Cmdr, 3d Inftry Div (Mech), Schweinfurt, Germany, APO New York	CG, 2d Armored Div (Forward) Garlstadt, Germany, APO New York
THOMPSON, Richard H. Lieutenant General	DCS for Log, USA, Wash, DC	CG, USA Mater Dev & Read Cmd, Alex, VA, and promoted to General
WAGNER, Louis C., Jr. Major General	Dir of Force Dev, Ofc DCS for Ops and Plans, USA, Wash, DC	DCS for RD&A, USA Wash, DC, and promoted to Lieutenant General
WALLER, Calvin A.H. Brigadier General	CofS, XVIII Arbrne Corps, Ft. Bragg, NC	Asst Div Cmdr, 82d Arbrne Div, Ft. Bragg, NC
WETZEL, Robert L. Lieutenant General	Dep CinC, USAEUR and Seventh Army, Heidelberg, Germany	CG, V Corps, USAEUR, Frankfurt, Germany
WILLIAMS, Paul S., Jr. Lieutenant General	CG, V Corps, USAEUR, Frankfurt, Germany	Dep Chrmn, NATO Milt Cmte, Brussels, Belgium
WOODMANSEE, John W., Jr. Major General	CG, 2d Armored Div, Ft. Hood, TX	Dir of Force Dev, Ofc DCS for Ops and Plans, USA, Wash, DC
WOODS, Stephen R. Major General	DCS, Resource Mngmnt, USAEUR and Seventh Army, Heidelberg, Germany	Dir, Prog Analysis and Eval, Ofc CofS, USA, Wash, DC

NAVY

DISHER, John S. Commodore	Cmdt, Nvl District Wash	Chf Nvl Air Trning Lieutenant
DUNN, Robert F. Rear Admiral	Cmdr, Nvl AF, US Atl Flt	Promoted to Vice Admiral
JOSEPHSON, John V. Rear Admiral	Recalled from retirement	Dir, Nvl Council of Persnl Boards

carry the Italian Agusta AB-212 helicopter, Sea Sparrow air defense missile, General Dynamics Phalanx close-in weapon system, and McDonnell Douglas Harpoon antiship missile.

The remainder of the Turkish surface



One of the Turkish Navy's two Berk-class frigates, powered by four Fiat diesels.

forces includes missile and torpedo-launching patrol boats and a mine force of layers, sweepers, and hunters. A small Turkish naval air arm includes US S-2 ASW aircraft and 12 helicopters.

Turkey is a customer of hardware, not a maker. Economic problems within the country prevented an orderly replacement of the older units of the Turkish Navy, and naval observers tell *AFJ* that there is no trend in sight to correct this.

Greek Navy

The Greek Navy has many similarities to its Turkish neighbor. The fleet includes a force of 10 submarines, 14 destroyers, six frigates, and fast missile and torpedo boats. Greece was the very first customer for the original MM-38 version of the French surface-to-surface Exocet missiles. These are mounted on French-built fast patrol boats. Greek-built, modern fast patrol boats carry six Norwegian Penguin missiles. Aside from two modern (1979) Dutch-built frigates, the Greek destroyer situation is that of Turkey—mainly WW II-type and ex-American. With two exceptions, its submarines are modern, conventionally powered, and German-built. ■ ☆ ■

Star Status

KLEE, Robert E. Commodore	Cmdr, Amphibious Gp One	Dir, Mobile Log Support Forces, Amphibious, Mine and Advanced Nvl Vehicle Ship Div (OP-37), Ofc CNO
MCCAFFREE, Burnham C., Jr. Commodore	Dir, Mobile Log Support Forces, Amphibious, Mine and Advanced Nvl Vehicle Ship Div (OP-37), Ofc CNO	Cmdr, Amphibious Gp One
WALKER, Edward K., Jr.	Asst Comptroller, Financial Mngmt Sys, Comptroller of Navy	Cmdr, Nvl Supply Sys Cmd and Chf of the Supply Corps
WILKINSON, Joseph B. Rear Admiral	Cmdr, Pac Missile Test Ctr, Point Mugu	V Cmdr, Nvl Air Sys Cmd
WOLKENDORFER, Daniel J. Commodore	Cmdr, Patrol Wgs, US Pac Flt	Dir, Antisub Wrfre Div, (OP-951), Ofc CNO

The President has nominated the following Army and Navy reserve officers for permanent promotion to the grade shown:

Major General, USAR

BARATZ, Max
GRAY, Roy C., Jr.
HELIX, Daniel C.
HENDERSON, John P., Jr.
JONES, Robert Q.
MAGRUDER, Warren A.E.
WAGES, Harold J.

SARBANES, Anthony S.
SCHELLHASE, Walter R.
SIMS, James R., Jr.
WILKIE, Dennis A.

Commodore, USNR

AMOS, Henry V., Jr.
BENSON, Burton O.
CERDA, James J.
FULCHER, Clay W.G.
HEVER, John J.
LEUKHARDT, Martin W.
REIDER, Albert E.
SMART, David O., IV
SMITH, Jack S.
STRICKLAND, James M.

Brigadier General, USAR

BACK, Marvin G.
BARKER, George E.
CRAIG, James T.
DREGER, Wilson T., III
HAUGHT, James E.
HELM, Lewis M.
HOPE, Robert C.
JACKSON, Merwyn L.
MACMILLAN, Richard H., Jr.
MCARTHUR, Charlton B.
OVERBEY, Robert M.
REMICH, Antone F.
SANDLER, Roger W.

Major General, USMC
NELSON, Ronald K.

Brigadier General, USMC
COOPER, Jerome G. ■ ☆ ■

McDonald (Continued from page 87.)

Northern Flank Naval Forces

	European Ships		NATO Total	Warsaw Pact
	Available	Likely		
Carriers	8	4	14	1
Attack Subs	150	90	136	169
Cruisers/Destroyers	90	25	76	41
Frigates/Corvettes	180	117	158	82
Amphibious Ships	38	16	40	12
Total	466	252	424	305

McDonald's staff says that SACLANT now has only about 15% of the mine warfare ships it needs, 45% of the aircraft carriers, 50% of the escorts, 60% of the attack submarines, and 80% of the maritime patrol aircraft required to carry out all of its missions. About 80% of SACLANT's mine countermeasure vessels, for instance, are over 20 years old.

Given current economic conditions in Europe and those which most experts foresee, there seems little likelihood that Europe can or will come close to meeting SACLANT's force goals. Some critics believe they are impossible to achieve and therefore unrealistic. Indeed, McDonald's staff told *AFJ* it had no figures on how much it would cost NATO to buy the ships he needs. Whatever the

number is, it would be in addition to the 4% annual increase in defense spending which General Bernard W. Rogers, the Supreme Allied Commander in Europe, has been calling for to improve NATO's conventional defense posture and thus reduce its dependence on the early use of nuclear weapons. But NATO countries other than the US are barely able to increase their defense spending by 2-to-2½% a year.

Given those economic facts of life, some analysts say that a *major* build-up in NATO's naval forces at this time would be the wrong priority—that a build-up of NATO's conventional deterrent must come first—since the reinforcements from the US and Canada which that fleet is basically designed to protect would arrive in Europe too late to influence the outcome of a determined (Continued on page 115.)

McDonald

(Continued from page 112.)

Warsaw Pact attack.

But virtually every NATO observer agrees that NATO's European allies must *not* further reduce their naval forces and *must* modernize them. They may not be large enough or fast enough to determine the *outcome* of a major land/air battle in Europe, but they are of prime importance in *detering* that war.

Estimates suggest that it would take 2,300 merchant shiploads per month to reinforce NATO during the first six months of a prolonged conflict, or an all-out NATO build-up to deter one. At a minimum, *AFJ* Contributing Editor Anthony H. Cordesman estimates, 600 ships a month would have to cross the Atlantic with critical military support. "Regardless of all programmed improvements in US airlift," he says, "90% of the military resupply from the US to NATO must still move by sea."

Letting the Soviet Northern and Baltic Fleets break out into the open Atlantic to put supplies and reinforcements at risk could mean disaster for General Rogers' outnumbered and outgunned in-place forces. Admiral McDonald noted at *Wehrkunde* that, if that is not to happen, he needs more help from Europe than he is getting.

McDonald's staff told *AFJ* that they recognize the economic constraints which preclude a major build-up of

(Continued on page 116.)

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NATO's naval forces, but say "there is more than one way to skin a cat." Thus, SACLANT is exploring "other possible solutions" to overcome the problems. While they decline to go into detail, perhaps the most effective step that could be taken would be to convince Europe's political leaders to commit a larger fraction of their national forces to NATO in times of tension, instead of waiting for NATO to go on reinforced alert. ■★■

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III

The Bloody Twilight of the Dreadnoughts

JUTLAND

Jutland was the last great battle-line encounter in naval history. The British and German fleets met at the height of their powers; battle cruisers against battle cruisers, battleships against battleships. The resources of two empires had gone into the making of those fleets which embodied the highest technological advances of the day. Yet the battle was far from being the conclusive conflict expected by both sides. Instead Jutland is a story of lost opportunities, misunderstood signals, and questionable leadership. Instead of the majestic and terrible spectacle of two fleets pounding each other into ruin, there is a hazy picture of two giants groping for each other through the North Sea mists, making occasional and bloody contact and then failing to follow fortune.

In one sense Jutland resembles the Marne. The strategic victory went to the side that suffered the heavier losses, the British. Jutland also, it may be argued, was the last gamble of the German High Seas Fleet. Had that fleet won, the whole course of the war might have been changed. The gamble failed. The High Seas Fleet returned to port, never again to sortie with battle flags flying.

The Allies' situation at sea in May 1916 was far more favorable than their position in the land war. For nearly three years, Britain's Royal Navy had enforced a blockade upon Germany. The block-

ade's impact upon the German and Austro-Hungarian economies at that time was serious but far from critical. There were those in the German naval war ministry, however, who foresaw that if the blockage were to continue, the consequences for the two powers could be grave.

On the high seas, the British had methodically run down the surface raiders loosed by Germany at the start of the war, while the submarine menace had not yet developed fully. When Admiral Alfred von Tirpitz on Feb. 4, 1915, proclaimed that "every Allied merchant vessel found within the waters surrounding the British Isles would be destroyed," he was indulging in wishful thinking. At that time the Germans had between twenty and twenty-five submarines, of which only seven or eight could be at sea at any given time. Later this situation was to change—partly as a result of the events recounted in this chapter—and the U-boat campaign came close to bringing Britain to her knees.

Through 1916 the High Seas Fleet, Germany's maritime pride, had been bottled up in its ports, aside from one or two daring but ultimately unprofitable adventures. To the patriotic German, this fleet represented his nation's challenge to Britain's position as Mistress of the Seas. The High Seas Fleet had been a quarter of a century building. At the time of Jutland, its crews were imbued with a high sense of purpose. In the wardrooms, officers drank to *der Tag* when their ships would humble the British.

THE
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The developing German sea power challenged the Royal Navy as it had not been challenged since the Napoleonic Wars. Once the challenge was understood—and it took a long time to bring understanding to some admirals and most politicians—the British service, goaded and guided by two human dynamos, Admiral Sir John Fisher, the First Sea Lord, and Winston Churchill, First Lord of the Admiralty, made enormous efforts to maintain British naval superiority. This had to cover not only the North Sea and the North Atlantic but every quarter of the globe in which British merchantmen operated.

Admiral Sir John R. Jellicoe commanded the British Grand Fleet. He had every professional qualification for the post. He had been given command of the largest battle fleet of modern times, served by officers and seamen who, emerging from the doldrums of the last century, had raised their effectiveness to a very high mark.

The command responsibility was awesome. Winston Churchill

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after the war stated Jellicoe's position in stark terms: "Jellicoe was the only man on either side who could lose the war in an afternoon." It might fall upon the admiral "as on no other man—Sovereign, Statesman, Admiral, or General—to issue orders which in the space of two or three hours might nakedly decide who won the war." For it was taken by Churchill and by the conventional military wisdom of the day that the "destruction of the British battle fleet would be final."

It is not necessary to accept this view. Sixty years later it appears extreme. But Jellicoe accepted it. His acceptance of it explains much that happened in those confused hours of conflict in the North Sea.

The two most important weapons of contemporary naval war, the airplane and the submarine, played no important roles at Jutland. There were no aircraft present, and submarine activity was minimal. But the torpedo, a weapon that could be launched by either submarine or destroyer, affected British tactics throughout the battle. Although torpedoes played a minor role in the Jutland fight, in the minds of the British commanders, particularly Jellicoe's, they were a significant, perhaps dominant, factor. And it is in the minds of commanders that battles are won or lost.

Conscious of his overwhelming responsibility to preserve British naval superiority, Jellicoe not unnaturally was wedded to tactics that enjoined caution upon the fleet. Very nearly the opposite was true of the German commanders, Admiral Reinhard Scheer, commander of the High Seas Fleet, and Admiral Franz von Hipper, who led the battle cruisers. The Germans from the outset of the war had avoided a major naval action with a British fleet which they knew to be superior in numbers, speed, and weight of metal. They hoped that in any engagement mines and torpedoes would sink enough British ships to redress the balance. In this they had been unsuccessful in terms of ships sunk but eminently successful in convincing Jellicoe that caution was to be his watchword. This was a dreary slogan to offer a fleet, and a nation, imbued with memories of Nelson's "England expects every man will do his duty."

No account of Jutland is understandable without recognition of a salient factor on the intelligence side. The German light cruiser *Magdeburg* had been sunk in the Baltic in August 1914 by the Russians. After the encounter, the Russians recovered the body of a German noncommissioned officer whose dead arms clasped the cipher and signal books of the Imperial German Navy. For good measure

the books also contained the Germans' squared maps of the North Sea.

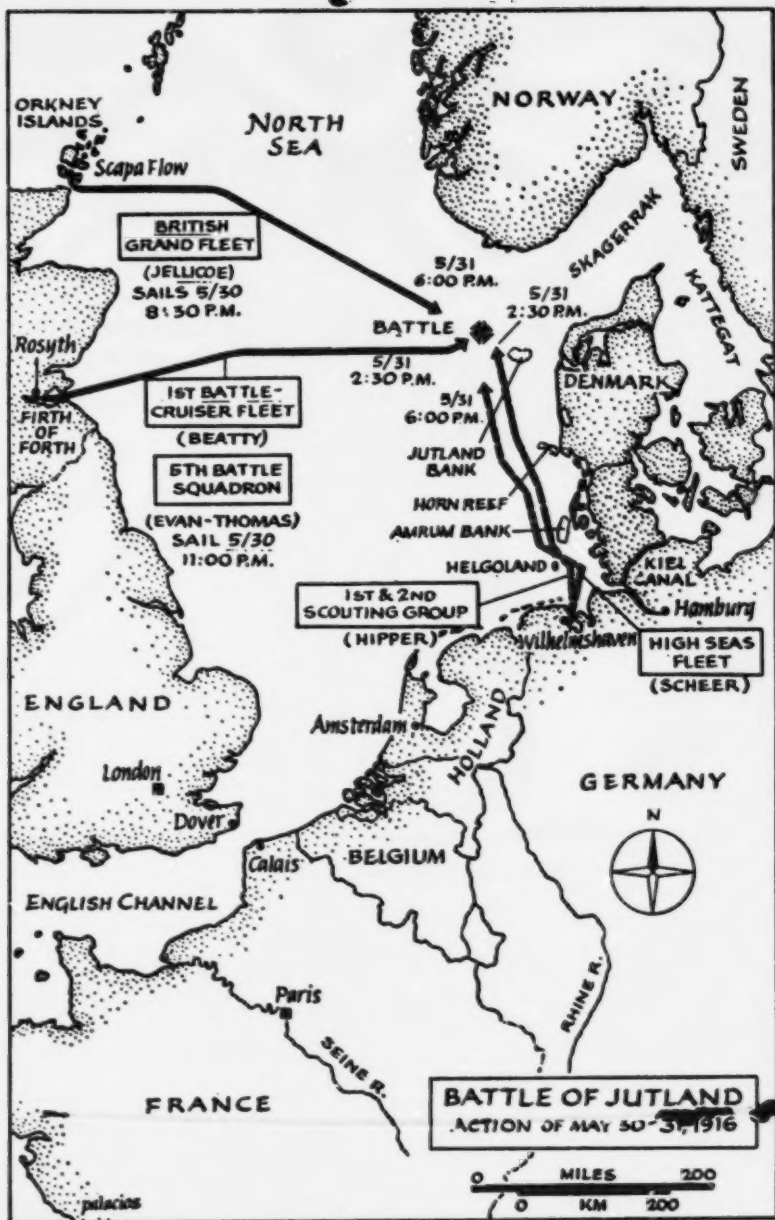
British naval intelligence, after receiving this vital information from St. Petersburg, was able to intercept and decipher much of the Germans' most important operational orders. This should have been a vital element at Jutland. It was not. Intelligence is useful only when commanders are prepared to accept it and act upon it.

The plan evolved by Admiral Scheer was simple. He would sally from the North Sea ports with the High Seas Fleet, tempt the Grand Fleet into action, and inflict enough damage on some squadrons to redress the balance of naval power in the North Sea. He did not place great reliance on torpedoes; his vision was of isolated gunnery actions that would further whittle the strength of the British already depleted by mines and submarine attacks.

The world is unlikely to see again a parade of naval power comparable to that exhibited by the two fleets as they moved toward battle. The British deployed twenty-eight "dreadnought" battleships, the all-big-gun battleship championed by Churchill during his tour at the Admiralty. In addition there were nine battle cruisers, thirty-four light cruisers, and eighty destroyers. The Germans, despite their excellent gunnery and, in some cases, more modern ships, were at a numerical disadvantage. Admiral Scheer had sixteen dreadnoughts, which from this point will be described as battleships, which is what they were, and five battle cruisers. These were supported by eight old battleships, eleven light cruisers, and sixty-three destroyers.

The British also had the advantage in speed and weight of metal. Their slowest battleship could steam at twenty knots, and the four new ships of the Queen Elizabeth class were capable of twenty-four to twenty-five knots. The fastest German ship had a top speed of twenty-one knots. The British superiority was even greater in gun power: 48 15-inch, 10 14-inch, 132 13.5-inch, and 144 12-inch guns against the Germans' 144 12-inch and 100 11-inch. The British also held a 382-362 lead in torpedoes, those hobgoblins that haunted Jellicoe.

Of the commanders at Jutland, the most interesting, if not on that famous day the most successful, was Vice Admiral Sir David Beatty, who commanded the battle cruisers. To a British public less than enthusiastic over Jellicoe, a small taciturn figure or over the more imposing but equally taciturn Field Marshal Sir Douglas Haig, commander in chief of the British armies in France, Beatty with his cap



aslant, his vigorous language, and his "hell-for-leather" tactics was the closest approximation to "the Nelson touch," that combination of tactical genius and charisma which led to victory at Trafalgar and made Nelson the greatest admiral of his time.

It fell to Beatty and his battle cruisers to make the first contact and fight the first of the two actions that made up the Battle of Jutland.

By late May, Admiralty intelligence in London was reporting unusual activity in the High Seas Fleet, and at 5 P.M. on May 30 Jellicoe was informed that the Germans were at sea. Although the British did not know it, the German plan was to send Admiral Von Hipper with a force of battle cruisers and light cruisers up the Norwegian coast. The assumption was that this would lure the Grand Fleet into battle. Scheer hoped to destroy part of it.

The British fleet put to sea in two divisions, Beatty and his battle cruisers in the south, Jellicoe and the Grand Fleet in the north. By the evening of May 30, both were at sea.

Seldom in war do operations go according to plan. Jutland was no exception. Beatty was turning north to unite with Jellicoe when one of his light cruisers sighted an unknown steamer. The *Galatea* steamed to investigate. Simultaneously, one of Hipper's cruisers sped on the same errand. The cruisers signaled "enemy in sight" to their flagships, and the first action of Jutland began.

Beatty on the *Lion*, his flagship, increased the speed of his squadron and turned about to meet the Germans. But the battleship squadron, the four ships of the new Queen Elizabeth class commanded by Rear Admiral Hugh Evan-Thomas, continued to steer in the opposite direction. He continued on this course for eight minutes, losing touch with the battle cruisers. When, finally, the battleships turned, they were ten miles behind Beatty's ships.

Here is the first of the errors that mark Jutland. Why did Evan-Thomas fail to turn? Beatty could have sent the order to turn by searchlight, a more reliable means than signal flags. But he did not. When Evan-Thomas finally did turn, Beatty gave him no time to catch up with the main body but steamed full-tilt toward Hipper. Evan-Thomas claimed that he did not see Beatty's signal flags until 2:40 P.M. But ten minutes earlier his flagship, the *Barham*, had received by wireless a message from the *Lion* about Beatty's new course.

The controversy raged for twenty years in the Royal Navy and

rages still in the writings of historians. It is difficult to assign the blame. But the fact is that in the first half-hour of Beatty's fight with Hipper, the heavy guns of the battleship squadron played no part.

By 3:45 P.M. the two battle cruiser squadrons were in action at a range of about nine miles. They fought for two hours. Beatty had the numerical advantage, six ships to four, but this advantage was soon eliminated.

The *Indefatigable*, hit by a salvo of shells from the *Von der Tann*, was driven out of the British line and soon sank with a thousand men. The *Lutzw*, Hipper's flagship, hit the *Lion* twice. One of the shells penetrated the midship turret. Major F. J. W. Harvey of the Royal Marines, the turret commander, managed before he died (both his legs had been blown off) to call the order down the voice tube to flood the magazines. Thus the *Lion* probably was saved from the fate of the *Indefatigable*.

No naval officer on either side had lived through so fierce an encounter. The battle cruisers were firing four rounds at a time, each shell weighing about half a ton.

The *Queen Mary* was the next British ship to go. Plunging fire from the *Derfflinger* hit the *Queen Mary*, which burst into flame and exploded. About this time the *Princess Royal* vanished into a cloud of smoke and a signalman on the bridge of the *Lion* reported to Beatty, "*Princess Royal* blown up, sir."

The Vice Admiral's reaction was characteristic. Turning to his flag captain, Chatfield, he said, "There seems to be something wrong with our damned ships today. Turn two points to port"—that is, two points nearer the enemy battle line.

This was the crisis of the first battle. The remaining British battle cruisers were firing more effectively, and the German ships began to take heavy punishment. The German fire became less accurate. Then, shortly after 4 P.M., the ships of Evan-Thomas's Fourth Battle Squadron, out of the fight until then, began to hurl their 15-inch shells at the last ships of Hipper's formation. The situation from the German standpoint had worsened. The trap had not sprung. Admiral Scheer now had to come to Hipper's aid.

Just before 5 P.M. ships of Beatty's light-cruiser screen sighted the German High Seas Fleet. The admiral then turned his battle cruisers north to entice Scheer's ships toward the Grand Fleet to the north. Again Evan-Thomas's squadron missed the signal and was engaged by the van of Scheer's battleships before he too turned north.

Scheer's conduct reflects, as general orders say, "the highest credit on his service." Despite the threat posed by the Fourth Battle Squadron, he hastened to Hipper's rescue. By doing so, he moved toward the Grand Fleet under Jellicoe now advancing south in six parallel columns. As Churchill points out, the situation had been reversed. Beatty now was attempting to lead Scheer into range of Jellicoe's guns. Hipper and Scheer, without knowing it, were advancing toward the superior Grand Fleet.

The question of Jellicoe's tactical use of his fleet becomes all-important. As he advanced, he was not in a combat formation. To deliver his maximum "payload," as it would be called today, he had to turn each column to the left or right so that the broadsides of the entire fleet could be directed at the enemy. In exercises the Grand Fleet had taken only four minutes to carry out this maneuver.

Now the fog of war intervened. At 6 P.M. Jellicoe wanted to know the location of the enemy battle fleet. At first Beatty, still intent on Hipper's battle cruisers, failed to answer. Then both Beatty and Evan-Thomas signaled the location and course of Scheer's ships.

Jellicoe now ordered the deployment that has been the subject of continued and violent controversy. He deployed on his left wing. Critics contend that he should have deployed on his right wing, although that might have meant that Scheer would have crossed the head of the British line, "crossing the T" before the British could fire. In any event, it was twenty-two minutes before the British line was straightened out, and the time lost was priceless.

Churchill argued that Jellicoe might have given a third possible order. Jellicoe, he claims, could have run up the old and famous signal, "Follow me," and taken his own division out of the formation, to be followed by the other divisions. The argument is buttressed by Churchill's estimate that Jellicoe would have saved three miles and ten minutes by this maneuver.

Scheer was now rushing toward the British battle line. But he was reluctant to risk the High Seas Fleet, inferior in numbers, speed, and weight of metal, against the Grand Fleet. On the German side, too, there were tactical misconceptions. Scheer sighted the battle cruisers, decided it was the main battle fleet, and turned about. The time was 6:30 P.M. Mist obscured the North Sea. Darkness was gathering. Scheer turned west toward England.

While the two vast fleets had been jockeying for position, single units delivered heavy fire. The German cruiser *Wiesbaden* was sunk.

But Hipper succeeded in sending the *Invincible*, another battle cruiser, to the bottom.

The tactical situation was odd, to say the least. Scheer was steaming away from his bases and a superior fleet. The British, having come into action, had now lost their quarry. Now Scheer made one of the battle's many controversial decisions. After nearly half an hour steaming toward the west, he suddenly reversed his course and headed east.

The German official history endorses Scheer's explanation that he turned back in order to "seek contact with the enemy again." Contact is a word of wide application. It seems probable, sixty years later, that Scheer hoped to head for harbor and, if lucky, to attack ships at the end of the British line of battle.

Whatever his thoughts, he gambled, for the German fleet now encountered the heaviest cannonage ever recorded at sea. Those British battleships within range opened fire, and the crew of the leading German ship saw a horizon alight with gun flashes. The lighter German ships suffered most. The *Lutzow* and the *Seydlitz* were badly damaged. Shells rained on the leading battleships of the Koenig class.

Scheer embraced discretion. Just after 7 P.M. he again turned his fleet westward, screening the withdrawal with torpedo attacks from his destroyers and ordering the already badly battered battle cruisers to make another attack on the British.

The torpedo attack, in Jellicoe's mind at least, justified all his forebodings about the ability of this relatively new weapon to damage his fleet. The British admiral swung his fleet away by two quick turns of two points each or 22.5 degrees in all. The Grand Fleet left the battleground and never again sighted Scheer and his battleships.

Caution reigned on both sides. Only Beatty appears to have grasped the significance of the situation. He saw the opportunity of cutting off the enemy fleet before it could run for home. At 7:47 P.M. he sent a message to Jellicoe: "Submit that the van of the battleships follow me [in the *Lion*]; we can then cut off the enemy's fleet." It was fifteen minutes before Jellicoe replied in the form of a message to the Second Battle Squadron ordering them to follow Beatty. Beatty had continued on his course and at the end, as at the beginning, fought the enemy. The German battle cruisers were sadly battered. British gunnery on the *Tiger* knocked out the two remain-

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ing turrets of the *Derfflinger*, and the *Seydlitz* and *Lutzow* were hammered hard. Night fell and the Germans escaped to the west.

The German position was dangerous. Jellicoe still commanded a much superior fleet. Scheer knew this and had to go home. The British commander avoided a night battle which, in retrospect, seems wise. Why hazard his superiority in a nighttime encounter which of all naval operations is the most risky? Scheer, on the other hand, had to return home. He wisely was reluctant to risk a daylight battle with a relatively undamaged Grand Fleet. Three courses were open. Each led to a channel swept throughout with German minefields which covered the approaches to the home bases. One led past the Horn Reef on the east. A second led past the island of Helgoland. The third on the southwest would take the High Seas Fleet to the German coast and the mouth of the Ems River.

Scheer, we may assume, was in his cabin studying his charts, pondering his choices. Jellicoe had sent his battleships into night-cruising formation—three parallel columns, with his destroyers five miles astern. Beatty was at the head of the western flank with his battle cruisers. The two great fleets were no more than six miles apart in the night, a fact that is almost inconceivable to a generation reared on radar and its magic.

Jellicoe was also weighing his choices. Which route would Scheer take—the Ems, Helgoland, or the Horn Reef? Meanwhile the Grand Fleet was steaming southward at seventeen knots. And Scheer? He took the short route home via the Horn Reef while Jellicoe's attention increasingly was fixed upon the Helgoland and Ems routes.

The quiet progress of the two fleets did not last long. From about 10:30 P.M. onward, the scouting forces of both fleets were in contact as Scheer moved across the tail of the British fleet toward safety. The night actions were inconclusive, following the pattern of the operations of the preceding day. The German cruiser *Frauenlob* was sunk. Two British cruisers were heavily damaged. The light cruiser *Elbing* was rammed by the destroyer *Posen*, and the British destroyer *Spitfire* rammed the German battleship *Nassau*. It was a hit-or-miss action, blows struck in the dark. But the German fleet, with some variations, continued its course.

It cannot be repeated too often that on the British side, Jutland was a melancholy series of missed opportunities. Another was now to arise.

Admiralty intelligence in London had been monitoring German

signals traffic. At 9:14 P.M., the Admiralty intercepted and decoded the signal from Scheer to his fleet. At about 11:30, Jellicoe received the message: "German battle fleet ordered home at 9:14 P.M. Battle cruisers in rear. Course S.S.E. 1/4 east. Speed 16 knots."

The message could only mean that the High Seas Fleet was retiring by the Horn Reef. By turning his fleet onto a parallel course, Jellicoe would have the opportunity of engaging the Germans with a superior force at first light.

Jellicoe's course, however, was to reject the Admiralty's report and continue to head south at seventeen knots. It is a reasonable assumption that Jellicoe thus threw away his last opportunity to engage the High Seas Fleet.

For over half a century, controversy has raged around this and other decisions in the battle. Churchill, no admirer of Jellicoe's leadership, concedes that the admiral had received one clearly erroneous report from the Admiralty earlier in the day and that at 10:15 P.M. he had a signal from the cruiser *Southampton* that Scheer's fleet was still to the west. Another report from the cruiser *Birmingham* reported German battle cruisers still to the westward. There was another fatal error, however. The Admiralty had also omitted from its message the fact that Scheer was asking for airships—that is, Zeppelins—for reconnaissance over the Horn Reef, a reliable indication of the route he had chosen.

So the great floating fortresses steamed southward in the night. Scheer was making for the Horn Reef passage and home at sixteen knots. As he turned to the southeast, his squadrons encountered the British destroyer flotillas covering the rear of the Grand Fleet. The British took their toll but also lost the destroyers *Fortune* and *Ardent*, sunk in an action that began with the loss of the *Frauenlob*.

The Germans drove on. The British cruiser *Black Prince* was immolated by the fire of German battleships, and 750 men died. The destroyer *Turbulent* was sunk. By 2:10 A.M. the Battle of Jutland reached its last desperate spasm. The British twelfth destroyer flotilla dashed to the attack and sank the German cruiser *Pommern* and the destroyer *V-4*. The firing stopped. The Grand Fleet continued in stately procession toward the south until 2:30 P.M., when it turned northward away from the German coast. Scheer and his ships by now were beyond the range of pursuit. The battle was over.

The Germans saw Jutland, which they called the Battle of the Skagerrak, as a great victory. So it was, in a tactical sense. The Ger-

man battle cruisers had taken a heavy toll of Beatty's squadron. Scheer had escaped from a greatly superior enemy, partly through his own seamanship, which was flawed, and partly through British errors. The British Grand Fleet, the most massive assemblage of naval power in history, had hardly been engaged. Only one battleship, the *Colossus*, had been hit, and of 20,000 men on all the battleships, the casualties were two killed and five wounded. But the blunt appraisal so many years later must be that the Grand Fleet did not fulfill the hopes of the Admiralty, its commanders and seamen, and above all the people of Britain.

If losses are true indicators of victory and defeat, which they are not, then the Germans won. The British lost one battleship, one battle cruiser, four light cruisers, and five destroyers. The butcher's bill was 6,097 British killed to 2,545 Germans.

Why, then, should Jutland be included in a list of decisive battles? It was not, as some historians argue, the last sortie by the High Seas Fleet. The Germans went to sea again on Aug. 19. This time both Scheer and Jellicoe took counsel from their fears—Jellicoe on the assumption that the Grand Fleet was heading into a newly laid German minefield, Scheer on the supposition that he was about to be caught in a trap with a strong British force; actually there were only light British forces from Harwich, advancing upon Jellicoe from the south. Again there was the majestic but in the end futile picture of great fleets evading battle.

The significant fact is that after Aug. 19 and Jutland, the German High Seas Fleet never again emerged in strength from port. The Grand Fleet remained in being, its officers reappraising their tactics and noting the effect of plunging fire on ill-armored decks and turrets. But the fleet was there. Despite the submarine warfare around Britain's coasts and in the North Atlantic, the British were able to maintain their blockade of Germany. As the months wore on, with their frightful casualties on the western front, Germany's economic position steadily worsened. *Ersatz* became part of everyday language—ersatz coffee, ersatz soap, ersatz sheets, ersatz medical dressings for the wounded. The people of Germany's great cities became gaunt and hollow-eyed. Children suffered from malnutrition.

While the Grand Fleet maintained what Liddell Hart called "its passive superiority of strength," what of its great rival? The High Seas Fleet was condemned to spend the rest of the war in harbor. Seamen were transferred to submarines and other duties. Those who

remained spent their time repeating meaningless duties. They soon became the target of left-wing agitators, and when the German revolution burst at the end of the war, sailors from the High Seas Fleet were in the vanguard. The High Seas Fleet never fought again. *Der Tag* had come and gone. So from the strategic standpoint, the Royal Navy won Jutland and the naval war.

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I

COMMAND OF THE SEA*

For nearly fifty years—ever since Mahan and Colomb started to lay its foundations—naval theory has based itself upon the necessity of gaining "command of the sea." That idea has been so universally accepted, its sway so absolute for so many years that, like all dogmas too long unopposed, it has tended to develop into an unthinkingly repeated creed, professed without any clear understanding either of its purpose or its implications. The vehement and unexpected challenge which it has found in recent years can, therefore, claim at least this merit that it has made us realise how imperfect our appreciation of this fundamental element of naval strategy still is, how urgent the need for a closer examination than it has hitherto received and how vital the issues involved in its proper understanding.

If we wish to understand what Mahan himself meant by his emphasis upon the necessity of acquiring "command" we shall do better not to turn to his well known great historical works, but to those lesser studies which, almost completely forgotten to-day, offer an infinitely more illuminating insight into his thoughts than his more comprehensive publications. There, in a long essay on "Considerations governing the disposition of fleets" contributed by him in 1902 to the *National Review* and remarkable as his only attempt at a coherent interpretation of naval warfare as a whole, we come across, amongst many other highly interesting and important observations, the startling allusion to "the fundamental principle of all naval war, that defence is insured only by offence."

This statement is so remarkable that we must examine its form a little more closely before we turn to analyse its content. It is one of the fundamental characteristics—and weaknesses—of Mahan's theory that he is inclined to accept the "principles of war" evolved in land warfare unquestioningly for war at sea as well. If on this occasion, and on this occasion only in the whole of his works, we find him referring to a fact as "the fundamental principle of all naval war" we are forced to infer that this fact in his eyes constituted, not only the keystone of naval strategy, but the point as well in which war at sea differed fundamentally from war on land and from which therefore its peculiar characteristics were to be explained.

What then is the meaning of this sentence?

*Reprinted with permission from Brassey's Naval Annual, 1939.

THE PROBLEM OF NAVAL DEFENCE

From the time when ships for the first time were gathered into fleets and the primitive "cross-raiding" of the Middle Ages gave way to ordered strategy, naval commanders have been beset by one overwhelming perplexity—how to intercept their opponents before these could have wrought irreparable damage to the interests entrusted to their protection. How easy, in comparison, is the task of a commander on land. There a general, if he does not feel strong enough to seek out and overthrow his opponent in his own territory, can interpose his army between the enemy and his country like a shield by taking up a favourable position near the frontier, in the secure knowledge that his opponent must either come to meet him there with all the advantages of defence in his favour, or else, if he tried to slip around him, would expose himself to all the dangers of a counterstroke in flank and rear.

How different and how infinitely more difficult is the lot of the naval commander! Between him and his opponent there stretches not the almost imperceptible frontier line, permitting the establishment of direct contact from the first moment of the war, but the broad common of the sea; immense compared with the narrow circle of observation and reach of fleets; unobstructed by accidents of the ground capable of canalizing an attacker's advance into certain narrow channels; devoid of occupation and consequently of the timely information available from that source; thus offering the infinitely more mobile attacker almost unlimited opportunities for evading the defender's vigilance and striking directly at his interests before he can interfere, the more so as these interests are themselves incomparably more widespread and difficult to guard. The interposition of a broad neutral ground between the two belligerent countries, instead of the direct contact of the common frontier, extends the area threatened by enemy attack from the strip adjoining this frontier to the whole coastline of the defender—in the case of island powers like Great Britain and Japan almost to the whole country. In these circumstances even the task of defending merely the coasts of the home territory may prove exceedingly difficult; it becomes absolutely harassing when colonial and other oversea interests multiply the number of vital objectives at which an attacker might be able to strike. The whole of Napoleon's Trafalgar campaign was based upon this distracting effect of an unlocated force at sea; and when Villeneuve's squadron got to sea at last, the objectives believed to be threatened by it were as far apart as Alexandria, Ireland and the West Indies.

Yet the defence of territorial possessions against attacks from the sea is not the most difficult task confronting a naval commander. After all, the local superiority gained by the attacker through evasion—unless

subsequently confirmed by a victory over the defender's fleet hurrying to the rescue, as in the case of the French before Minorca in 1756 or before Yorktown in the Chesapeake Bay in 1781—can necessarily be only temporary. Most territorial objectives, however, will be capable of offering some resistance; vital points will be protected by fortifications, local forces able to maintain themselves until relieved. Thus the danger from such surprise attacks over sea lies mainly in the chance that the attacker may be able to achieve a decisive advantage before the defender's fleet can close with him and bring him to battle; as in the classical case of Napoleon's Egyptian expedition of 1798.

Infinitely more difficult to safeguard against the attacks even of a greatly inferior opponent is that other national interest represented by the maintenance of trade and shipping. Moving beyond the confines of the national territory over the great open common of the sea, it cannot seek protection behind the stationary defence of fortresses; it lies open to every attack launched against it. Again, the extreme vulnerability of merchantmen and their incapacity to hold out until relieved makes their loss almost certain as soon as they fall in with an enemy raider, while their dispersal in a continuous stream of isolated units all over the seven seas on the other hand immensely complicates the task of their defence.

Thus in naval warfare a commander cannot be satisfied merely with "establishing the line of defence close before the region to be defended"*, as his military colleague on land can take up a position near his frontier. Nor would he be able to improve his chances of intercepting his opponent to any considerable degree by taking up some position midway between his own and his opponent's shores. In the case of very wide areas such as the Pacific in a war between the United States and Japan, in which the sheer distances involved and the dangers of an eccentric move would act as a restraint at least upon the main forces of the two belligerents, an intermediate position would probably be able to afford a reasonable degree of security to shipping in their respective spheres. That, however, is obviously an exceptional case demanding a special investigation.

In all narrow seas, however, such as the Baltic, the North Sea, the Mediterranean or the West Indies, wherever fleets face each other at easy striking distance, there is and has been one and one way only for a naval commander to ensure the safety of his charges, and that is by sweeping his opponent from the board altogether; in other words by obtaining against him undivided "command of the sea." Nothing short of that will suffice.

*A.T. Mahan, *The Influence of Sea Power on the French Revolution and Empire* (Boston: Little, Brown and Co., 1893), I, p. 340.

That is the meaning of Mahan's words. Because "the sea is all one"; because no part of it can be fenced off, fortified and defended by itself, therefore effective protection of our own interests on or by the sea can only be assured by driving our opponent from the whole of it. Thus, whereas on land we need not necessarily overthrow our opponent to hold our own, at sea we are forced to overthrow and drive him from it altogether merely for the sake of assuring our own safety. That is the fundamental difference between war at sea and war on land.

THE NATURE OF "COMMAND "

This fundamental fact unfortunately is not as clearly brought out as it should be in the terms commonly applied to it. What we wish to command or to control is not "the sea," but our opponent, or the neutrals; it is precisely because we cannot "reduce" the sea "into possession" that there is the delicate and difficult problem of the neutral and his rights to be faced in naval warfare. Nor in "gaining command" do we acquire as is so often erroneously asserted, for ourselves what we had been enjoying all the time, use of the sea; we acquire the power to exclude our opponent from that use and thereby to prevent him from attacking us or from interfering with our own actions. The word "command" does not preclude the idea that the object to be commanded might not be divided; "exclusion" shows beyond any possibility of a misunderstanding that only one side can obtain "command" by excluding the other, and that, although "command" may be local and temporary only, simultaneous "divided command" of the same stretch of water is impossible and no "command" at all. It is this one-sided character of the "command" which gives to war at sea such an infinitely more dramatic aspect than on land. At sea there is no halfway house between victory and defeat, because there is no difference between what is needed for defence and what for attack. One side only can gain security at the cost of the other—or neither.

Nor does the matter rest there. Beyond the economic distress imposed upon the weaker party in naval warfare by the interception of his sea communications "command of the sea" confers upon the victor a one-sided advantage to which neither war on land nor war in the air has any parallel to offer. For the belligerent who has obtained for himself "command" not only enjoys practically complete immunity from invasion over sea, but in addition is capable himself of threatening with perfect impunity his opponent with all conceivable forms of attack against his territories, from diversionary landings to real invasions. Whereas on land the weaker belligerent, as long as his forces are not completely destroyed or dispersed, can not only carry on the struggle,

but still hope to turn the tables upon his opponent, in maritime warfare the side which loses the power to dispute the "command" is practically helpless against the attacks of its enemy and without any hope of changing that situation.

COMMAND OF THE SEA AND BLOCKADE

The obvious, the best and the shortest way to obtain such command has always been to seek out the enemy's main forces and destroy them in battle. Unfortunately, in naval warfare we are not always at liberty to do so. On land, once the issue has been joined, there is no possibility for either side to evade its opponent's impact, and an attack can, therefore, be pressed home, if need be, until it has completely broken down the weaker side's power of resistance. At sea, on the other hand, the weaker side not only enjoys almost unlimited possibilities of evasion, but, if an attack should be pressed home to its shores, is always able to remove its forces out of the enemy's grasp altogether, by the simple expedient of withdrawing them into its fortified ports, where he is unable to follow them. Thereby it does indeed relinquish the command to its opponent, but, by precluding him from completing his success and preserving its powers of resistance and counter-attack, prevents him from definitely establishing and consolidating his superiority.

In such a situation, therefore, there is nothing left to the stronger side but to attempt to secure the precarious temporary command gained by it, by posting superior forces before the ports into which the enemy has withdrawn and thus establishing a hold upon him where there is a reasonable chance of intercepting him—that is his point or points of departure.

"Command of the sea" thus in the last resort rests upon the power to blockade. Not in the sense in which some of Mahan's critics have misunderstood his teachings, as if by blockade a superior fleet could enjoy all the privileges of command of the sea without running the risks inseparable from battle. Nobody has been more emphatic than Mahan himself upon the grave defects and limitations of the control established by even the closest of blockades, the tremendous strain imposed by them upon the blockaders, and the immense feeling of relief brought about by every decisive engagement. But decisive battles such as Quiberon Bay and Tsushima, relieving the victorious side of all and every apprehension on the part of the vanquished, are rare in naval history. Even Trafalgar did not relieve the British Fleet from another ten years of dreary watch over the military ports of the Continent, from Antwerp to Venice; and in the vast majority of cases the stronger side has to be satisfied with the precarious hold upon its

opponent provided by blockade.* Without that possibility to fall back upon, the mere determination to seek out the enemy and bring about a decision would be of no avail to secure "command." Nor is blockade merely a way to acquire "command"—by forcing the enemy to come out eventually and offer himself to battle—but must be considered itself a form of command, because—although with many imperfections—it fulfils its function of excluding our opponent from the use of the sea. Thus it is blockade which really constitutes the corner-stone of naval warfare, while the fuller measure of command achieved by the complete destruction of the enemy's main forces forms merely its superstructure.

This defensive function of blockade, so often unduly disregarded compared with its offensive function as an instrument to bring economic pressure to bear upon our opponent, is stressed by Mahan throughout his writings, and never more clearly and convincingly than in the concluding section of the special essay on "Blockade in relation to Naval Strategy," contributed by him in 1895 to the Journal of the Royal United Service Institution.

Using the term blockade loosely, as the nearest single word to comprise any close watch over the entrance of an enemy's port with a view to impede egress or ingress, such blockades are of a twofold character—offensive and defensive. The first is directed against both egress and ingress, but more especially ingress, being meant to prevent the entrance of needed supplies, and being, therefore, essentially a blow at his communications. The second also has a twofold aim, but its chief object is to prevent egress unmolested, because such freedom of issue to an enemy means danger, more or less great to certain national interests; which because they be outside the national boundaries cannot be protected by ordinary defence measures, by fortifications and organized land forces. Such a blockade is, therefore, essentially defensive. Resort to it implies the existence of great national *external* interests, which are open to injury and can in no other way be so cheaply, sufficiently and certainly be defended. If the external exposed interests are many, it is impossible to imagine any means of guarding them equal in efficiency to that of heading off the danger at its sources. This is the strategic necessity—the decisive strategic consideration, which dictates the method essential to be adopted.†

*Moreover, once such complete command has been established naval strategy proper, as Corbett remarked, is at an end. It is only as long as command rests merely upon blockade that such problems as defence of trade and its interconnection with the control of the enemy's main forces retain any real significance.

†Journal of the Royal United Services Institution, Nov., 1895, pp. 1067-8.

IV

GERMAN THEORIES OF SEA WARFARE*

Despite the coming of the air arm and the tendency of the great powers towards increasing their self-sufficiency the world to-day stands again under the sign of a renewed emphasis upon Sea Power and Naval Armaments. Simultaneously, in Germany there has taken place—almost unnoticed by the general public and even by those more closely interested in world politics—from the World War to the present day a fundamental reshaping of naval strategy forcing us to a profound change in our approach to it. (Emphasis added.)

Thus begins the introduction to a little study on *Present-day Naval Warfare*, in which Ernst Wilhelm Kruse, a naval writer on the staff of a well-known Hamburg daily and an officer in the German Navy's Reserve, attempts to draw the first comprehensive picture of that new German naval doctrine.† What is that fundamental transformation, which German naval thought is alleged to have undergone between the last and the present conflict and how has it contributed to form and influence the German Navy's present strategy?

THE CONTRADICTION IN TIRPITZ'S POLICY

To answer this question we must go back for a moment beyond the World War to the beginnings of the rise of the German Navy to the rank of a first-class sea power under Admiral von Tirpitz in the last decade of the past century; for Tirpitz's policy, the fate of the German Navy in World War I and the revolution of German naval thought in the post-war era are intimately linked together. A fundamental contradiction inherent in Tirpitz's policy placed the German Navy in the hopeless position in which it found itself during the World War, which in its turn gave rise, in the decades following the war, to heart-burning criticism out of which was to arise the new German conception of naval warfare.

Admiral von Tirpitz, as Chief of Staff to the High Command between 1892 and 1894, had laid the foundation for his great work of the

*Reprinted with permission from *Brassey's Naval Annual*, 1940.

†*Neuzeitliche Seekriegsführung* (Berlin, 1938), translated as *Modern Naval Strategy*. See Chap. I, pp. 15-17.

resurrection of the German Navy from the deplorable state into which it had fallen during the eighties and early nineties of the last century by evolving a basic tactical and strategic doctrine. In the famous Service Memorandum No. IX he had condensed that doctrine into the following statements: that war at sea could be successfully waged only by striving for the "command of the sea," not by cruiser warfare or any other means; that such "command" could only be acquired by one of the belligerents at the expense of the other, and that for this as well as other reasons naval warfare, in contrast to land warfare, could only be waged effectively and successfully by a strategic offensive on the enemy's coasts, whereas a strategic defensive left a belligerent in a very difficult and well-nigh hopeless position; that finally to carry through such an offensive a superiority of at least one-third was indispensable.

These clear and sound ideas formed an excellent basis for the strategy of the German Navy as long as that strategy was directed against an opponent—the Franco-Russian forces in the Channel and the Baltic—over whom the German Navy could hope to acquire such a superiority of 30 percent.* When Tirpitz, however, recalled from the Far Eastern Station to master the obstinate Reichstag in June 1897, persuaded the Kaiser that Germany must build not only a battle-fleet, but a battle-fleet directed primarily against Great Britain to prevent that country, so he claimed, from destroying Germany's economic rivalry in the bud by a sudden attack in force, he had to base this new policy upon strategic assumptions running directly counter to the doctrine which he had just established with so much emphasis. Unable to hope by any stretch of phantasy that he would be able to create a 30 per cent superiority over the British Fleet, Tirpitz was obliged to have recourse to the ingenious expedient of his famous "risk-theory" openly proclaimed in the second Naval Law of 1900, but, as we know to-day, underlying already the first law of 1898.

The essence of that theory was that as the German Navy could not be made strong enough for a reasonable chance of victory against every opponent it should be made so strong that its destruction would cost even the strongest sea power such heavy losses, endangering its supremacy *vis-à-vis* third navies, that the mere thought of that risk would act as a deterrent against an attack. In other words, unable to provide the objects to be protected—the German oversea communications and interests—with an adequate direct military protection against the

*Thus in a plan drawn up by Tirpitz in the spring of 1896 for a speech in Reichstag the strength of the German Navy was set at 30 per cent above that of the French Channel Fleet computed at one-third of the total French forces. Correspondingly the plans of operation worked out by Tirpitz in 1895 foresaw an immediate attack upon that part of the French forces, before the rest would have time to come up.

overwhelming sea power of Great Britain, Tirpitz fell back upon the idea of safeguarding them *indirectly* by developing the German Navy into a "risk-factor" which, so he hoped, would prevent the war *politically*, which he could not hope to win *militarily*.

This ingenious scheme unfortunately suffered from the fatal drawback that, resting not upon solid military strength but upon a highly questionable and utterly unpredictable psychological assumption, it was not only liable to break down any moment, but, if it should break down, would leave the German Navy in precisely that position of pronounced inferiority, the dangers of which in naval warfare Tirpitz had set out so eloquently and convincingly in his Service Memorandum No. 9. Nor was that all. As Tirpitz—for obvious reasons—was not able to admit to his collaborators, and possibly not even to himself—the fundamental contradiction with his original strategic ideas contained in his much admired "risk-policy"* the German Navy was not only forced into a position of permanent inferiority running counter to the whole nature of naval warfare—in itself a fatal handicap to the development of sound strategic ideas—but, over and above, was not even given at least the benefit of a clear appreciation of that position, but, on the contrary, misled into a hopeless confusion of ideas by its own highest authority.

The inevitable result was that the German Navy's ideas on strategy were not only thrown into a hopeless confusion but almost completely stunted.† From its original doctrine of the *strategic* offensive the German Navy retained merely the "tactical will to battle,"‡ concentrating all its training and its effort upon preparing itself against the day of a decisive encounter with the British Fleet; but, as its fundamental policy foredoomed it to a hopeless defensive and precluded it from ever

*Publishing in 1926 in *Nauticus* the Service Memorandum No. IX—or rather judiciously selected parts of it—to prove that the German Navy had not been devoid of offensive spirit Tirpitz expressly claimed that it had formed the basis of his Naval Laws.

†After World War I German naval critics attempted to explain the stunting of German naval strategy in the pre-war period by external factors such as the lack of previous experience of naval warfare and the rapidity of the German Navy's development, which, so they claimed, forced the concentration of all attention upon the technical and tactical issues and left neither time nor force for the consideration of strategical problems. Undoubtedly these external factors contributed to hinder the development of a proper strategic doctrine in the pre-war German Navy; but recognition of this should not obscure the fact that the fundamental reason for the atrophy of strategic thought in the German Navy before the war was the state of permanent inferiority in which the Tirpitz "risk-policy" placed the German Navy *vis-à-vis* its British opponent making all reasonable strategic considerations out of the question.

‡In his memoirs Tirpitz opposes significantly enough the "Political defensive" of the "risk-policy" to the "tactical will to battle" contained in it. Strategy falls between these two stools. . . . In the introduction to the publication of the Service Memorandum No. 9, on the other hand, he avoids all references to either strategy or tactics and contents himself with affirming that "the military development was based upon a spirit of offensive. That spirit formed the military basis of the First Naval Law" (*sic*). *Nauticus*, 1926, p. 187.

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envisaging a strategic offensive, that "decisive battle" became to the German Navy practically the ultimate end of all its ideas and aspirations, an "end in itself." In theory indeed the German Navy paid lip service to a vague idea of "command of the sea" to which victory in such a decisive encounter should lead; but that "command," in a misconception of Mahan's ideas that has persisted to this very day, was conceived as a state of purely military supremacy, parallel to that acquired by an army on land, and not as the indispensable presupposition and means to the real and ultimate objective of war at sea—the control of communications. Because it attributed this same erroneous conception of naval warfare as a struggle for "military supremacy on the sea" to the British Navy, the German Navy was firmly convinced that the Grand Fleet would not fail upon the outbreak of hostilities to bring its "brutal superiority" to bear and come forth into the Heligoland Bight to offer it battle.

When in the years immediately preceding the World War the German naval authorities began more and more to suspect that the Grand Fleet would not be inclined to play into their hands and prefer to blockade them from Scapa Flow, they were so incapable of adjusting themselves to this new situation that they continued to hope against hope that it would not arise.*

WORLD WAR I

The failure of the Grand Fleet at the outbreak of hostilities to appear in the Heligoland Bight and offer itself to the German High Sea Fleet's counterstroke upset at one blow the whole of the German Navy's strategy and disclosed the fundamental fallacy in Tirpitz's policy. Waiting in vain in tense suspense in its estuaries for the enemy to come and cross swords with it, the German Navy missed whatever advantages it might have secured by a determined attack against the transport of the British Expeditionary Force across the Channel in the first weeks of the War, to awake gradually to a situation for which it was completely unprepared, both materially and psychologically. Pent up in the innermost corner of the North Sea it found the battle, for which it had been training for nearly two decades, out of its reach and its opponent, from his far-off base at Scapa Flow, able to cut all its communications with perfect impunity while itself was unable to strike a single effective blow for its defence, far less in its turn to attack its opponent's

*See for this point the memorandum of May, 1914, quoted and criticised by Admiral Groos in the first volume of *The War in the North Sea*. When Tirpitz, who was with the fleet on its cruise in the summer of that year, asked Admiral von Ingenohl, the Commander-in-Chief, "And what, if the English should not come after all?" the latter had no answer; but neither had Tirpitz himself!

communications. Built for a battle within a radius of some 100 miles around Heligoland the German Fleet was even technically incapable of seeking out the Grand Fleet in its own waters, even if its inferiority, both in numbers and position, had not precluded it from challenging effectively the command exercised by the latter.

All that its leaders felt they could do under these circumstances was to attempt to lure their opponent to expose his forces in detail by "tip and run" raids against the British East Coast. As these, however, had to rely for their effect not upon the threat to vital British communications, but merely upon the moral pressure exerted thereby upon the government they did not prove very effective, and when at last the raid of May 30 1916, against the trade route running through the Skagerrak brought Admiral von Scheer face to face, not with parts but with the whole of the Grand Fleet, he was fortunate enough to be able to extricate himself by his skill and the brilliant training of his force from that not very pleasant situation. The result was that the German Navy, convincing itself of its inability to break the British "command" in battle, began to place all its hopes instead upon undermining it by unrestricted submarine warfare. From the autumn of 1916 onwards, therefore, the German battle-fleet fell back more and more into the role of a support for the submarine promoted to the position of the decisive weapon, with the result that its spirit, already badly shaken by the frustration of all its hopes as well as by long inactivity, began to disintegrate more and more until the flame of open revolt broke out and precipitated the general breakdown that ended with the German Fleet's surrender.

THE POST-WAR ERA: THE OFFICIAL VIEW

This tragic discrepancy between the high hopes and aspirations with which the German Navy had been built and its inability to alter the helpless strategic position in which it found itself during the War could not but set those who had devoted their lives to it thinking. Again however, the wholesome though bitter lessons, which might have emerged from a candid recognition of the fundamental reasons for the failure, were suppressed and distorted by the intensive propaganda by which Tirpitz strove, with astonishing success, to obscure the fact that his whole policy, based upon a series of misapprehensions and miscalculations, had been completely discredited by events. In the face of the overwhelming weight of the whole evidence available he asserted that his "risk-policy" had been on the eve of success when Bethmann's bungling of the situation in July, 1914, had given the British their "last chance"; and that strategically the German Navy's chances of victory had been thrown away by the Kaiser's and Bethmann's reluctance to risk the

fleet, and the lack of initiative on the part of the various commanders and other authorities in letting themselves be fettered by their orders. The former claim was the very reverse of the truth, and the latter substituted subsidiary factors for the real issue; but the German Navy in the bitterness of defeat was only too glad to convince itself that its fundamental policy had been right and that it had only been deprived of the success deserved by the errors and the timidity of the civilian authorities. Practically the whole of German naval opinion fell promptly into line with this view, which to this day (1940) dominates the German Navy's outlook despite the change in recent years in its strategic outlook. Above all, the tendency to demonstrate the correctness of that view involuntarily dominated and coloured the Official History of the War.

The officer entrusted with the crucial section on "The War in the North Sea," Commander (now Admiral) Groos, was an unusually broadminded and well instructed naval theorist. In later years he achieved great merit by introducing first Corbett, curiously enough almost completely ignored before the War, and later Admiral Castex to the German Navy, and he exercised a most salutary stabilising influence as the outstanding authority on questions of naval strategy. But, unfortunately, he was also an ardent admirer of Tirpitz and always inclined to let himself be swayed in his judgments by the latter's contentions. Thus the "War in the North Sea" presents a curiously contradictory spectacle. On the one hand Admiral Groos started by freely admitting that the German Navy had failed to understand that the essence of naval strategy lay in the fact that it was not a struggle for "military supremacy" as an end in itself, but for the ultimate aim of "control of communications"; and he strongly criticised the German commanders' failure to realise the significance of the decisive fact that Great Britain "by her geographical position alone" was able to cut Germany off from all her trans-Atlantic communications. But the recognition of this fact did not lead him on to a fundamental re-examination in its light of the soundness of Tirpitz's policy or the strategy of the German Naval Command in World War I. Instead, after having mentioned this fundamental weakness of the German position he quietly dropped this decisive issue without examining whether and how the German Navy could have tried to effect it; and for the rest of his critical analysis he treated the problem facing the German naval commanders as if it had merely consisted in the problem of bringing its opponent to battle and not in the practically hopeless proposition of wresting from him the "command" against a vast superiority both in numbers and in position.

On the other hand, Groos did not minimise the great superiority which they had to face and, therefore, rightly maintained that the only

way in which the German High Sea Fleet might conceivably have wrested "command of the sea" from the Grand Fleet would have been a series of victories over sections of it, in contrast to Tirpitz, Wegener, and others, who boldly proclaimed its capacity to achieve a victory over the whole united force of the Grand Fleet. This contradiction between his apologetic tendencies and his better insight is curiously reflected in his "Seekriegslehren" in the fact that he discusses the German strategy in World War I not once, but twice, under mutually exclusive headings; wrongly as the problem of "acquiring command by battle," rightly as that of disputing it by a "fleet in being."

ADMIRAL WEGENER'S "NAVAL STRATEGY OF THE WORLD WAR "

This reluctance of German naval opinion to face squarely the central issue of the war in the North Sea—the fact that the German Navy with all its activity had completely failed to affect the strangle-hold of the British blockade that was slowly choking Germany to death—did not remain, however, without opposition. In 1926 Vice-Admiral Wegener (retired) in a memorandum at first distributed privately amongst a number of elder officers, but three years later made generally accessible in book form under the title *The Naval Strategy of the World War, (Seestrategie des Weltkrieges,)* put forward a trenchant criticism of German naval strategy during that conflict as well as against its subsequent interpretation, that was to exercise the most profound influence upon the whole further development of German naval thought.

Admiral Wegener started his study by hammering into his readers' minds the fundamental difference between the British position at Scapa Flow, controlling and covering all the trade routes of the seven seas, and the German position in the innermost corner of the Heligoland Bight, controlling no trade route whatsoever. In these circumstances, he claimed, the persistent endeavour of the successive German Naval Commanders to bring about a decision in the "strategically dead" North Sea had been the attempt, hopeless from the outset, to bring about a battle, where the German Fleet could neither enforce it nor utilise it. German naval strategy in the World War had unconsciously been fatally vitiated by the influence of Tirpitz's "risk-theory" which by its defensive formulation had blinded the eyes of the German Navy to the fact that it could only hope to achieve its mission—the maintenance of Germany's vital overseas communications—by taking the offensive and wresting the "command" from the Grand Fleet. The proper strategy for it would therefore, have been to create equality of strategic position with the Grand Fleet by a "geographical offensive" that should have carried the

German Fleet through the Danish Sound to the control of the Kattegat and to a position at Skagen at the tip of the Jutland peninsula, and from there to the S.W. coast of Norway. From there the German Fleet would have been able to roll up or at least to force back the British line of blockade and thus to bring about a decisive battle for the real issue of the War.

This bold indictment, advanced with impressive assurance, contained a curious mixture of truth and error. By placing the real issue in the centre of the discussion and insisting that the naval strategy of World War I should be judged with reference to it and not to what the German Commanders had believed in or hoped for, Admiral Wegener undoubtedly rendered German naval thought an outstanding service. It was most significant that such candid recognition of the real problem should have immediately led him beyond the faulty dispositions of 1914 to the contradiction inherent in Tirpitz's "risk-theory" as the ultimate root of the trouble. There, however, he stopped. He realised clearly how the strategic outlook of the German Navy had been stunted before the War by the defensive cant of the "risk-theory" and its fundamental contradiction of the true nature of naval warfare; but he saw in it merely a strategic misunderstanding and not the reflex of the far more fundamental viciousness of the German Navy's material position that resulted from it. Elated by his discovery he completely ignored that, to assume the strategic offensive and successfully to dispute the control of communications, a correct appreciation of their cardinal importance in naval warfare was not enough but that a substantial material superiority—Tirpitz's one-third—was indispensable. Thus, instead of realising that the fundamental mistake in Tirpitz's policy had lain in directing the German Navy's reconstruction against the overwhelming power of Great Britain, and the German Navy's difficulties in the World War *primarily* in its numerical inferiority and only *additionally* in the confusion of ideas caused by the cant of the risk-policy, he attributed everything to the latter alone. He thus arrived at the curiously inconsistent attitude of whole-heartedly endorsing Tirpitz's fundamental policy while at the same time blaming him for having given it the form and objective by which alone, if at all, it could have succeeded, and for having failed to have given it an aim—the control of communications—which Tirpitz could not possibly have envisaged.

This lack of a truly clear understanding profoundly vitiated Wegener's otherwise brilliant and stimulating criticism of German naval strategy during the war. Inclined to attribute to strategic dispositions an importance out of all proportion to their possible significance, he came to an over-optimistic view of the chances of the German Fleet in the War as well as to a fatal over-emphasis upon the importance of strategical

positions as compared with material forces. The advance of the German Fleet to the S.W. coast of Norway suggested by him—provided always that it could have been carried through at all—would have been able to do very little to improve the fundamental weakness of the German Fleet's position. All that it would have achieved with certainty would have been to bring about the battle which the German commanders had sought so long in vain in the North Sea; but not the battle they were striving for, with isolated sections of the British forces, but the battle which even the most enterprising of them, Scheer, had wished to avoid, the battle with the whole concentrated might of the Grand Fleet. In fact, by precipitating such an action it would actually have destroyed the one slender chance of the German commanders of beating their opponents in detail, while, once the issue had been joined, the better strategic position of the German Fleet would have been unable to add anything to its chances of a tactical victory. Wegener's claim finally that a victory won by the German Fleet off the coast of Norway would have had a strategic significance, whereas one achieved in the "strategically dead" North Sea would have had none, was simple nonsense; Admiral Groos pointed out with perfect justification that, if the German High Sea Fleet had succeeded in winning a decisive victory over the Grand Fleet, it would have mattered nothing where the battle had taken place.

It is, however, understandable that this sovereign disregard of the realities of the situation by Admiral Wegener earned him much sharp criticism on the part of many elder officers, but also the enthusiastic admiration and support of the younger men. The immense influence which his study was to exercise on the development of German naval ideas can only be understood if one realises the immense emotional appeal which his optimistic presentation of the German Navy's lost chances in World War I, and his clarion call to a second and better advised attempt, exercised upon the future leaders of the German Navy. To these young men, groping desperately for an idea in the light of which they could reconstruct German sea power, his emphasis upon the "control of communications" as the true goal and sole aim of naval warfare came with the force of an absolute revelation;* but one can well doubt whether its effect would have been so overwhelming if Wegener's criticism of Tirpitz's policy had been more radical and his picture of

*"It is an honourable duty to attest that Vice-Admiral Wegener has been responsible for giving the inspiration to naval strategic thought in the higher sense in which at the moment a great part of the officers is already eagerly taking part." Captain Clausen, "Vom Wesen der Seestrategie," *Marine Rundschau*, 1927, p. 446.

"It must be clearly expressed that these articles constitute pioneer work in the sense of preparing the way for an intellectual activity, which before the World War had been greatly underrated and, in consequence, crippled." Commander Grassmann, "Vom Wesen der Seestrategie," *Marine Rundschau*, 1927, p. 337.

Germany's chances during the War less optimistic and enthusiastically inspiring. In the crop of articles inspired in the following years by his study, in which a number of these younger men attempted to develop in his wake a new understanding of naval strategy,* this emotional appeal is very clearly apparent and the disregard of realities, with which they fought World War I over again to a better end, even more grotesquely exaggerated.

Incomparably more serious than these youthful ebullitions—which as far as necessary immediately found their correction—was the danger of a fundamental misunderstanding contained in Wegener's theories. As it appeared in his discussion of the naval strategy of World War I the newly discovered ultimate aim of naval warfare—the control of the vital communications—did not affect, but, on the contrary, tended still further to reinforce the traditional objective, "command of the sea." "Command of the sea" ceased to be an end in itself—in the sense of a "strategically empty" purely military supremacy, in which it had been erroneously envisaged by the German Navy before and during World War I—but it retained its full significance as the indispensable preliminary and means to an effective achievement of that ultimate aim. This fact, however, had not explicitly been set out by Wegener, with the result that the door was opened to the possibility that, in the absence of a fully developed theory, the end might so far overshadow the means that the latter's vital role might be overlooked and "control of communications" conceived as something possibly independent of, or even opposed to, "command of the sea." In these first articles based upon Wegener's study that danger was as yet hardly more than a shadow, but that it was perceptible even at that moment to an intelligent officer, is shown by the critical observations with which Commander Walter Neumann accompanied Grassmann's article on the "Essence of Naval Strategy." Commenting upon the three "tasks" enumerated by the latter—the cutting of the enemy's communications, the maintenance of one's own communications, and the protection of the coasts—he pointed out that the author had completely omitted the first and fundamental task of every naval commander—measures aiming at the destruction or control of the enemy's armed forces. "That this task is not being purposefully excluded can perhaps be inferred from the author's later observations," he goes on, "clearly and unmistakably, however, it has not been set out by him. If one confines oneself to a verbal interpretation of the three

*Captain Clausen, "Ueber Seepolitik und Seestrategie," *Marine Rundschau*, 1926, p. 81, with observations and criticisms by Admiral Holiweg (retired) in the same volume, p. 404, and Commander Grassmann, "Vom Wesen der Seestrategie," *Marine Rundschau*, 1927, p. 337, with observations and criticisms by Captain Clausen, p. 444, and Commander Walter Neumann (retired), p. 446.

points enumerated by him, the danger is imminent that one might fall into the error of a tendency long prevalent in France, the adherents of which aimed at achieving the ends of naval warfare by the fulfilment of its subsidiary tasks with the result that the French Navy in its material and training became incapable of achieving its main objective."

With remarkable foresight Commander Neumann had in this passage laid his finger upon the very spot whence the "revolution in German naval thought" was to take its source. For the time being the movement brought into German naval ideas by Wegener's study, however, stopped there. In 1928 Admiral Groos reassembled in his "*Seekriegslehren*" the ideas developed by him in the writing of the Official History in a framework taken over from Corbett's *Some Principles of Maritime Strategy*, and for the next eight years by his authority, backed by that of Castex, whose monumental *Theories Strategiques* appearing from 1929 to 1935, introduced to the German Navy in a long series of articles in the *Marine Rundschau*, kept German naval thought on the safe, if somewhat eclectic, lines of a sober, common-sense evolution of Mahan's and Corbett's classical doctrines.

THE NEW NAVAL DOCTRINE

The revolution in German naval thought started by Wegener's study came to a head in the first years of the Nazi regime when the resurrection of the German Navy made the development of a suitable strategic conception for its guidance imperative.

This new strategy, which from 1935-6 onwards rapidly conquered and dominated practically the whole of German naval thought, found its extreme—and hence its clearest and most consistent—expression in the study which for the first time presented it to a wider public, Captain von Waldeyer-Hartz's article on "Naval Warfare of Tomorrow."* In this study the dissociation of the new aim of "control of communications" from the traditional method of seeking "command of the sea," the first almost imperceptible traces of which we found above with Wegener's first adherents, had been developed to its utmost. Captain von Waldeyer-Hartz no longer tacitly overlooked the decisive role played by "command of the sea" in the struggle for "control of communications," but, erroneously identifying it with that conception of naval warfare as a purely military struggle which had vitiated the German Navy's thoughts before and during World War I, rejected it as out of date, and proclaimed in its stead the new naval strategy of to-morrow, which should aim directly at the defence and attack of trade without the intermediary step of the struggle for a "general command."

* *Wissen und Wehr*, 1936, p. 183.

"The naval strategist of the future," he said, is no longer going to make his plans of operations dependent upon purely military considerations; he is going, on the contrary, to place himself and the forces under his command in the first place in the service of economic warfare. If that opinion should prove correct—and there are many signs for it—then trade warfare will be the dominant form of the naval warfare of tomorrow.

And again,

The Blue-water School of to-day is completely different from that of the sailing-ship era. The latter saw its ultimate military objectives in the seeking out and destruction of its opponent's armed forces, the attack and defence of trade fell under the heading of subsidiary operations. In future the roles will be changed. The armed forces afloat are going to be utilised for the intimidation and control of the neutrals; the whole strategy will be directed upon the objective of immobilising, or better still, destroying the merchant shipping under the enemy's flag, with the utmost consideration for one's own armed forces; operations are no longer going to be directed upon the enemy's armed forces, but against his economic resources; in one word, battles and combats at sea are going to be merely the consequences of trade warfare; whereas formerly—to quote only Aboukir and Trafalgar—they constituted the end of all strategic measures. Blue-water School of to-day means trade warfare, trade warfare in its extreme form.

Attack upon the enemy's trade and protection for our own trade, those are the decisive tasks to which everything else is going to be subordinated. The result will inevitably be a wide dispersal of naval forces.

And summing up,

Because of the wide dispersal of merchant shipping naval warfare is going to take place on all the seven seas simultaneously, most violently at those points where sea trade is most strongly concentrated.

The distinction between merchantman and man-of-war is going to disappear. Both of them are going to be fighters, attackers and defenders alike.

The designation of this new conception of naval warfare by Dr. Kruse as revolutionary is, if possible, an understatement. What Captain von Waldeyer-Hartz presents here under the disguise of a mythical British "New Blue-water School" is nothing more or less than the conscious repudiation of the tradition of four centuries of naval warfare brought into a rational form by men like Mahan and Corbett. The central issue of that warfare, the struggle for the "command of the sea," had been a

measure of defence and offence alike; the elimination of the enemy's main forces from the sea by battle or blockade had formed the surest—in fact, the only sure—measure against an invasion, just as it constituted the pivot for the whole complicated system of trade defence and the basis for a diversion of the enemy's forces by combined operations or large-scale maritime wars.

This cardinal function of the "command of the sea" in naval defence was completely overlooked by the new German school of naval strategy which, erroneously identifying the quest for the "command" with a *military* offensive against the enemy's armed forces, believed that naval warfare could in future be conducted, without such "military strategy" altogether, as "mutual trade warfare" in the form of attack and defence of convoys.*

The German Navy, however, accepted this revolutionary doctrine without hesitation or question, so eminently did it seem to fit its peculiar position. By the naval agreement with Great Britain of June, 1935, the overwhelming opponent, the superiority of which she had had to recognise during World War I, appeared to have been eliminated for ever. With the Anglo-German rivalry of prewar days removed by Germany's acceptance of a 35 per cent standard every possible source of friction was claimed to have been removed and a naval conflict between the two nations to be henceforth out of the question. With that contingency apparently removed there remained then as practical propositions a struggle with either France or Russia, or more likely a coalition of the two. Against Russia alone the German Navy would probably have been able to secure the "command of the sea" in the Baltic; against France, or France and Russia allied, her forces were obviously not adequate to that task. On the other hand, thanks to the

*That an understanding of that *defensive* function of the "command of the sea" was not wholly lacking in Germany is shown by the article of Rear-Admiral Donner (retired) on "Offensive Defense in der englischen Seestrategie" in the same volume of *Wissen und Wehr*, 1936, p. 676, in which had appeared Waldeyer-Hartz's article. In this study Admiral Donner gave a very clear appreciation of the role played by the "command of the sea" in British defence against both invasion and attack on merchant shipping, remarking on the latter point: "For non-self-sufficient countries bordering on the sea the maintenance of their overseas imports will normally constitute a life and death problem. In that case the mere coastal defence proves wholly insufficient as the sea itself remains beyond its reach, lies open to enemy action and becomes unpassable. Such defence of trade can therefore in the last resort be satisfactorily assured only by offensive action. The defensive system of trade protection by convoys can in certain circumstances prove sufficient over a considerable period, but is hopelessly inadequate against an opponent full of initiative. . . If it has succeeded during the World War against the submarine, it was only able to do so, because the British Main Fleet kept its opponent's main forces away from the lines of communication."

As these remarkably clear observations ran, however, against the whole trend of contemporary German naval thought, they have remained without any effect and it has been left to a foreign naval authority, Admiral Castex, to give Admiral Donner's articles the praise and credit due to them.

screen offered by a supposedly neutral Great Britain, she could hope to maintain her vital trans-Atlantic communications by convoying her merchantmen through the North Sea into the open Atlantic and beyond. Admiral Castex himself confirmed this from the French side.*

THE VOLTEFACE AGAINST GREAT BRITAIN: CRUISER WARFARE

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This pleasant dream was rudely broken, and the special character of the strategic doctrine, upon which the German Navy had based itself, was painfully recalled to her when, after Munich, the impossible threatened to become true after all and Hitler's policy threatened to range Great Britain against him. That the British Fleet would not be satisfied with that form of "mutual trade warfare" ascribed by Waldeyer-Hartz to its "New Blue-water School" was too self-evident to need any elaboration. Before its mighty shadow the German Navy's dream of achieving this time, what she had failed to do during World War I, the maintenance of Germany's oversea communications, disappeared overnight almost without a word.† All the more eagerly did attention concentrate upon the offensive aspect, for here the change from a strategy aiming at a battle with the enemy's armed forces, as in World War I, to the new strategy of "trade warfare," seemed to hold out prospects promising generous compensation. In World War I the German Navy had committed a fundamental mistake by keeping its gaze, as if hypnotised, upon the Grand Fleet, striving in vain to wrest from that fleet the "command" which in the nature of things it could not possibly hope to win. That mistake would not be repeated again. By avoiding, as far as possible, clashes with the British armed forces and concentrating instead the full strength of her attack—submarine, aerial, and surface—against her merchantmen she would strike not against superior strength but weakness, and fight not for an illusory military advantage, but for the real aim of naval warfare, the "control of communications."

This plan of campaign, although arrived at in a curiously devious manner, was certainly the best the German Navy could devise under the circumstances and it was not without some promise of success. In the past, the system of naval defence based upon the blockade of the enemy's main forces had tacitly rested upon the assumption that the enemy forces which inevitably would be able to avoid even the closest of

**Théories Stratégiques*, Vol. I., Nouvelle Edition, p. 121.

†The only reference to this defensive aspect of German naval strategy in the case of a conflict with Great Britain is the laconic observation by Admiral Prentzel: "A hostile attitude on the part of England would confront our naval strategy in the North Sea with very difficult tasks." Article "Kriegsmarine" in *Die Deutsche Wehrmacht, 1914-39*, edited by General Wetzell.

such controls would not be superior, individually or collectively, to the relatively weak forces acting as patrols or as direct protection of convoys behind the screen formed by their own main battle fleet. Whenever in the course of the Anglo-French naval wars the French Navy had sent out upon cruiser warfare whole squadrons of ships-of-the-line instead of the usual swarm of privateers and frigates, the difficulties of dealing with them had been great. If the German Navy instead of, as in 1914, letting its larger units be immobilised in the North Sea by the British Main Fleet, this time directed them instead against the relatively weak escort forces, she would in effect circumvent the whole traditional system of defence and could hope not merely to inflict considerable material damage, but above all to create a very considerable distraction of military effort. In World War I her submarine attack had broken down in the last resort, because the submarines, left to struggle alone, were defeated by the weak convoy escorts. Now a combination of submarine and surface attack promised a better success. Forcing the shipping into convoys the submarines would thereby offer to the surface raiders ideal targets to swoop down upon.

In her three so-called "pocket battleships" German naval experts claimed she possessed the ideal instruments for such supercruiser warfare. In a remarkably frank article on escort vessels published in the *Militär-Wochenblatt* in November, 1938, Vice-Admiral Meurer (retired) noted with satisfaction that although the building of large numbers of escort vessels by Great Britain showed clearly that she was anticipating not only submarine but, above all, surface attack, "nothing substantial had as yet been done in England (and equally in France) for the protection of oceanic convoys." Discussing the cruiser forces available as well as the plans for a strongly armoured and relatively slow type of 8,000-ton escort cruiser, he came to the conclusion that they all were insufficient to afford protection to "oceanic convoys" against "large commerce destroyers."

Against heavy cruisers with 8-in. guns, and still less against armoured ships of the 'Deutschland' type, such escort cruisers would indeed not be of any great avail. If such dangers had to be faced, older battleships, as in the case of the Norwegian convoys during the World War in 1918, would have to take over the protection. It is, therefore, not only a very important, but a very difficult, question that is being raised thereby; a question which has in no way been solved as yet despite the fact that it affects the whole strategy of naval warfare. The less one will have to reckon in future with the clash of large battle fleets as in 1916 at Jutland, the more trade warfare is going to become the main operative task of the strategy of naval war.

CONCLUSION

Under the influence of the contradiction with which it was infected by Tirpitz's ill-advised policy the German Navy has to this day failed to arrive at a truly sound theory of naval warfare. The reluctance to carry through the radical criticism necessary to clear the ground in this respect, together with a certain predilection for mere abstract reasoning and a misconception of British naval history as well as of its great interpreters, Mahan and Corbett, has vitiated the very notable effort made after World War I to arrive at a better appreciation of the true nature of naval warfare, with the result that German naval thought has swung almost as far away to the other extreme as in her pre-war conception of naval warfare as a purely military struggle.

How far this weakness of her theory may have affected the German Navy's conduct of the present operations it is at this moment impossible to tell. It is, however, significant that her well-laid plans have so far not been carried into practice. Above all, the wholesale attack upon the Allied convoys, that was to have been the centrepiece of her whole strategy, has so far completely failed to materialise. Two of her "pocket battleships" have indeed succeeded in getting into the open Atlantic, but their activities have been wholly confined to ordinary cruiser warfare against isolated merchantmen and their results in consequence very small. The *Graf Spee* kept well out of the track of convoys and, if interviews that have appeared in the South American Press are to be trusted, was actually under order not to engage any convoy escorted by more than two destroyers. Is it conceivable that that mysterious factor "command of the sea," for which German naval thought has professed so much contempt in recent years, may have proved an incomparably more impressive force in reality than on paper, and may have contributed to create that feeling of inferiority which in the past has cramped so many hopeful projects of a numerically inferior navy?

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CHAPTER**16**

Sea Power

The course of events at sea, immediately following upon the Warsaw Pact incursion into NATO territory on 4 August 1985, is not easy to follow in detail. The overwhelming need to preserve secrecy about their intentions, and the full exploitation of surprise, were reflected in the sparseness of Soviet and Warsaw Pact records, when these became available. On the NATO side it was all that the exiguous staffs could do, once war seemed imminent, to begin to put into effect the complex Alliance plans which had been prepared for just such a contingency. The detailed record disappeared with the miles of telex tape which had to be disposed of as quickly as it accumulated; critical decision-making by telephone and closed-circuit TV was also lost to the record; only the main features of the naval and maritime air operations can be established with reasonable certainty.

From the start-line of 2 Guards Tank Army, on the Elbe near Lübeck, to Flensburg, at the Baltic Exits, is 150 kilometres. By dawn on Monday 5 August, the Russians were there, and the Kiel Canal was in their hands.

The reorganization of the main NATO naval command structure (see Appendix 3) had been the occasion for a thorough review of the maritime aspect of NATO strategy, its concept of operations and its plans. The NATO Joint Allied Command Western Approaches (JACWA) had called for reaffirmation by the NATO Military Committee, the NATO Council of Ministers, and finally the NATO governments, the three cardinal elements in NATO strategy. First, that there would be no change in the determination of NATO to offer the stoutest possible resistance on land, as far forward as possible. Second, that NATO would remain flexible in regard to the use of battlefield nuclear weapons. Third, that the primary maritime task of NATO would be to ensure the safe and timely arrival in Europe of seaborne reinforcements and supplies from North Africa and elsewhere.

JACWA, in developing their plans, had to bear in mind certain considerations arising from the new command structure and relevant to NATO strategy. These were:

1 The fundamental purpose of NATO, as a military alliance, was to preserve the territorial integrity, political independence and economic strength of its member states.

2 The major member of the Alliance, the United States, had national security requirements of critical importance besides those of NATO. In particular, her strategic nuclear weapons were not, except for a few SSBN (submarines, strategic ballistic nuclear), committed to NATO.

3 The British *Polaris* SSBN force, though it was committed to NATO, could in certain circumstances revert to British national control.

4 The major problem of command and control (apart

from disruption of the electronic environment in wartime) would be to conduct operations effectively across the interfaces between JACWA and SACLAN to the west and north, and between JACWA and SACEUR to the east and south.

5 It had become glaringly obvious that if the margin of Warsaw Pact numerical superiority over NATO continued to increase in all arms, accompanied by technological equivalence and even advantage in some cases, the initial shock of Pact aggression in Central Europe might well carry its forces to the Baltic Exits and the North Sea coast. The lack of depth in the NATO defensive position on land, therefore, would necessitate, in the early stages of a conflict, the inclusion of the British Isles as the 'rear area' for the Central Front. Later, Britain would become a springboard for the counter-offensive. The closest possible understanding between command at sea and on land, between JACWA, SACLAN and SACEUR, would therefore need to be established and maintained.

6 In order to get the essential seaborne supplies and reinforcements from North America safely to Europe when required, SACLAN and JACWA would have to co-ordinate their strategy and operations closely, and give each other full support at all times.

7 The special character of the Western Approaches command, comprising naval forces (surface, air and submarine), maritime air forces and UK air strike forces, would have to be continually borne in mind. It was to be a 3-D team. The key point was that warships move at about 500 miles per day, aircraft at about 500 miles per hour; but whereas aircraft can stay on task for a few hours only, ships and submarines can stay at sea for weeks.

8 It was forty years since there had been a major war at sea. How would the complex array of weapons systems, counter-measures and counter-counter-measures work when the shooting started? There would be surprises. The fog of war might well obscure valuable lessons to be learned from the first engagements with the enemy. The Operations Analysis teams would have to be given every

opportunity to find out exactly what had happened. There would probably be heavy casualties on both sides. It would be just as important to know why we were successful as why we had failed.

It had been the usual practice, in drawing up NATO plans, to consider first 'the threat'. JACWA decided, instead, to begin by looking in some detail at what the Command would have to do, first of all during any period of warning that NATO might have of an impending Soviet or Warsaw Pact attack, then during the first two or three days of hostilities. As far as the opening phase of a war was concerned, they considered how SACLAN and JACWA could achieve sufficient ascendancy over the Soviet Navy, in the Atlantic and elsewhere, to ensure the safe and timely arrival in Europe of the seaborne military supplies and reinforcements essential to sustain SAC-EUR.

Turning over in their minds the broader aspects of maritime strategy, JACWA recalled a useful division of the maritime task which the British naval and air force staffs had once jointly set down in a War Manual. It contained lessons learned in the UK from the Second World War, not all of which had been applied. Maritime warfare, they had written (the word 'maritime' had been introduced in order to include the naval tasks of the RAF), comprises two separate but complementary functions:

1 *The management of sea use*: the organization and movement of shipping; the loading and unloading of cargoes; the control and defence of ports; and the manning, training and maintenance of naval forces.

This is predominantly a naval responsibility.

2 *Combat with hostile naval and air forces*: offensive and defensive operations of all kinds in support of the maritime aim, including direct support of land forces.

This is predominantly a joint naval and air responsibility.

As to strategy, what were the forces involved? The naval and air general-purpose forces immediately available to NATO and the USSR, for operations in the North Atlantic and Western Approaches (to which the contribution of non-Soviet forces would be negligible), would normally be of the following order:

Category	NATO	USSR
1 Carrier strike fleet	1	-
2 General purpose support groups	3	2
3 Escort groups	4	2
4 Fleet (nuclear-powered) submarines	44	60
5 Patrol (diesel-electric) submarines	40	40
6 Escort and patrol ships (other than those included in 1, 2, and 3 above)	52	64
7 Maritime strike aircraft (two-thirds carrier-borne)	300	250
8 Maritime patrol aircraft	50	50

Both sides would have a number of logistic support ships; amphibious ships and craft; mine counter-measure ships and auxiliaries. The Soviet Northern Fleet would also include upwards of twenty-five fast missile craft.

There were, of course, in addition, the large Soviet and Warsaw Pact naval and naval air forces in the Baltic, which the naval and air forces of the Federal German Republic and Denmark would have to oppose. In the Mediterranean there were the United States Sixth Fleet and a large part of the French Navy. The Italian, Greek and Turkish naval forces were also earmarked for NATO and would, provided their governments remained staunch, fight the Soviet Navy effectively.

The attitudes of the various governments in North Africa, as well as their capability to support Soviet naval operations, would be of critical importance. The relinquishment by the British, in the 1970s, of a naval presence in the Mediterranean, to be replaced partly by the US Navy, partly by Allied Forces South (AFSOUTH), had proved to be a weakening step.

Considering strategy, therefore, first of all during the period for warning period, JACWA foresaw five main steps:

- 1 To put the Western Approaches command on a war footing.
- 2 To step up reconnaissance of Soviet and Warsaw Pact naval and naval air activities.
- 3 To inaugurate measures to control and protect shipping.
- 4 In conjunction with CINCNORTH, SACEUR's major NATO commander in Oslo, to protect the oil and natural gas installations in the North Sea.
- 5 To ensure the safe and timely movement of all sea traffic between the UK and the Continent in support of SACEUR.

So far, little in the way of strategic thinking was needed. Once hostilities began, however, the options for decision would open up, as, under the impact of enemy action, the demands upon inadequate forces began to come into critical competition.

In the 1914-18 and 1939-45 wars JACWA's predecessors (with the warm approval of the British Admiralty) had proceeded at once to sea with their fleets 'to sweep the enemy from the seas'. Many thousands of miles of largely unproductive steaming had worn out both machinery and men. Valuable ships had been torpedoed, or sunk by air attack, without inflicting even equivalent losses on the enemy. JACWA, as a team, had a most compelling reason for rejecting this precedent. With so few forces at their disposal, and no reserves from which to make good losses, the only offensive operations which could be justified

were those which promised to reduce, at once, the level of the threat to NATO's aims.

It was evident that the most potent enemy forces were the sixty nuclear-powered general purpose submarines (SSN) of the Soviet Northern Fleet, together with the 250 *Backfire* maritime strike aircraft also based in the Murmansk area. JACWA's first two offensive operations, therefore, were as much SACLAN'T's as JACWA's. But the system of integrating functional commands ensured clarity of purpose, of command, and of control. The British Flag Officer Submarines was, in the NATO structure, both Commander Submarines, Eastern Atlantic, and Commander Submarines, Western Approaches. His RAF equivalent, the Air Officer Commanding 18 Group, was Commander Maritime Air, Eastern Atlantic, and Commander Maritime Air, Western Approaches. The deployment of NATO submarines on anti-submarine patrol was therefore to be carried out without delay. And the launch of a powerful maritime air strike against aircraft on the ground and air installations in the Murmansk area was planned to take place at the very earliest moment possible after the outbreak of hostilities.

The British naval contribution to NATO had been augmented, during the period 1979-85, following a sudden, eleventh-hour awakening of public opinion to Britain's extreme vulnerability to attack upon her seaborne trade and supplies—a vulnerability now felt almost as much by the other NATO countries in north-western Europe. The most important elements in the emergency naval programme were:

- 1 Three escort carriers. These were container ship hulls fitted with 'ski-jump' flight decks and containerized aircraft control and operations modules. Carrying a mix of V/STOL fighter-strike-reconnaissance aircraft, and ASW helicopters, these 28-knot ships, built to merchant ship specifications, were good value for money.
- 2 Four additional *Sheffield*-class fleet frigates.
- 3 Twelve corvettes of a new type, for fast patrol ship duties.

- 4 Six additional mine counter-measure ships.
- 5 Five small patrol (diesel-electric) submarines.

This naval construction programme was feasible, despite Great Britain's poor economic performance in the 1970s, because her shipbuilding industry, other than in designated warship building yards, was very short of orders and the extra jobs were warmly welcomed. It seemed a preferable alternative to building merchant ships, at a loss, for Soviet satellite countries, to be employed in cut-throat competition against the merchant fleets of the United Kingdom. The shape and size of the Royal Navy in the mid-1980s was appropriate, therefore, to the two main functions of the UK maritime task, namely, sea-use management and combat with hostile forces. This pattern had become accepted, also, in the other NATO navies, so that the mix of forces achieved overall had gradually moved towards the optimum.

The strategy of SACLANT, as it had evolved under a series of most able incumbents of the post, by 1985 comprised three main elements: first, to maintain in readiness the US Navy's strategic nuclear forces, and ensure that no Soviet operational development could upset the strategic nuclear balance; second, to act, with his conventional forces, as vigorously as possible to reduce the threat from Soviet conventional forces to NATO's seaborne supplies and reinforcements; third, to give direct assistance, as appropriate and feasible, to both SACEUR and JACWA in their operations.

SACLANT's assessment of the combat capability of various types of naval and air force had led him to base his concept of operations on the judgement that the supersonic homing, guided or programmed missile, whether launched from land, surface warship, submarine or aircraft, was the main danger to naval forces and shipping at sea. But it was a danger to which some effective counters were already in operational service. The hoary 'axioms of action'—above all surprise, concentration and economy of force—had to be borne in mind. Owing to the inability of submarines to operate

submerged in large groups, in the way, for example, the U-boat 'wolf-packs' were able to operate on the surface in the Second World War, it would today be difficult for a submarine attack to saturate the anti-missile defences of a well-ordered escort or support group. Maritime strike aircraft, on the other hand, could carry out a heavily concentrated attack, which might temporarily overwhelm the defences.

It was with these considerations in mind that SACLANT's operations were planned. It was essential, as a basis for them, to exploit two capabilities, which had been developed in recent years, to provide early warning of impending attacks. The first of these concerned submarines. The knowledge of Soviet submarine dispositions and movements painstakingly built up in peacetime had been augmented by the use of the surface-towed array surveillance system (STASS), operated in a number of suitably stationed patrol ships. These monitored the noise made by submarines underway, especially when they exceeded modest speeds. The information so obtained could be fed into the total submarine surveillance system, with corresponding improvement in its reliability and comprehensiveness. The second important system was the airborne warning and control system (AWACS), operated in large patrol aircraft. This could provide long-range warning of low-flying aircraft or missile attack, and hence help to offset, to some extent, the danger of defences being overwhelmed by the weight of a surprise missile onslaught.

The Soviet Naval Staff, in planning the naval operations which would support 'defensive action' by the Warsaw Pact, if that should prove necessary, were quite clear in their minds about what had to be done. The Soviet Navy had to show that its contribution to the achievement of the Soviet Union's political goals could be more than just supportive of the ground forces' campaign. By concentrating upon the isolation of the north-west European battlefield, it could not only help the Red Army directly but also do much to weaken the commitment of the United States to Western Europe. The main tasks of

the Soviet Navy, therefore, during the first ten days of hostilities, would be to:

1 Maintain the Soviet Navy's strategic nuclear forces intact and at readiness, whilst limiting as much as possible the damage which could result if NATO were to unleash strategic nuclear warfare or tactical nuclear warfare at sea.

2 Help the ground and air forces to seize and keep open the Baltic Exits, and the Kiel Canal.

3 Support the ground and air forces in the invasion of Norway from the north.

4 Destroy as many NATO warships, submarines and naval aircraft as possible, in the Arctic Ocean, Norwegian Sea, North Atlantic, North Sea, English Channel and Baltic. Outside these areas, in the Atlantic south of the Tropic of Cancer and elsewhere, NATO forces, or the forces of NATO member states, would only be engaged when hostile action seemed to be inevitable, or had already begun.

5 Interdict all sea traffic between the United Kingdom and the Continent.

6 Neutralize or destroy the North Sea oil and gas installations.

7 Maintain freedom of movement for Soviet submarines in the Greenland-Iceland-UK gap, whilst denying this to NATO submarines.

8 Prevent shipping, and especially military transports, from reaching NATO's European ports.

9 Get all Soviet and other Warsaw Pact ships, including fishing and research vessels, into friendly or neutral ports before their capture or destruction.

NATO's warning of imminent attack by the Warsaw Pact had been brief. Much reliance had been placed upon detection of the increased deployment of submarines from the Soviet Northern Fleet, based on Murmansk in the Kola Inlet, into the Atlantic. The Soviet naval command was aware of this. Although, under reasonable excuse, there was a movement of surface shipping from the Black Sea through the Bosphorus and the Straits (see

p. 177), no change was permitted in the pattern of submarine movements during the three weeks prior to D-day, 4 August 1985. There was, in fact, no need for it. Of the sixty nuclear-powered general purpose and forty diesel-electric patrol submarines in the Northern Fleet immediately available for operations, about one third were always at sea on a variety of tasks. They were primarily concerned with surveillance—of the US and UK strategic nuclear submarine forces, and of major US naval force movements and exercises. The submarines invariably went on patrol ready in all respects for war. They could remain on task, once hostilities broke out, until they had used up all their weapons, or were running short of food and (in the case of the diesel-electric submarines) fuel. What did happen, on 4 August and during the next few weeks, showed that, although the efficiency of the Soviet submarine force had improved a great deal since the Second World War, the anti-submarine measures of the Atlantic Alliance had done so too.

The situation at sea was uncannily reminiscent of the early months of the Second World War. Something like a 'Blitzkrieg' in Central Europe, accompanied by supporting naval operations; submarine attacks on shipping in the Western Approaches; sporadic attacks, submarine, surface and air, on Allied shipping worldwide; the bottling up, capture or destruction of the merchant shipping of the continental power, the Warsaw Pact, by Allied naval forces.

There were differences between then and now. These were, first of all, politico-military. Unlike Germany in 1939-40, the Soviet Union in 1985 was firmly established in the Middle East, and in both West and East Africa. On the other hand, the United States in 1985 had not stood aside, as in 1939-41, when Great Britain and the Commonwealth stood almost alone against Nazi Germany. The United States was now, from the very onset, at the head of a great alliance of countries formed for the purpose of supporting each other if attacked on land or—but here was the rub—if any of their ships or aircraft were attacked in the Atlantic north of the Tropic of

Cancer (the southern limit of the NATO area) or in the Mediterranean. Outside these specific sea areas, unfortunately, the Alliance could not operate as such.

The rapid growth in the number of independent nation states since 1945, most of them with sea coasts and maritime interests both commercial and naval, had added correspondingly to the complexity of war at sea.

The best that NATO could do had been to set up NATO Shipping Councils at the world's main ports. These consisted of representatives from the shipping and forwarding agents of NATO countries, as these existed in each place, together with diplomatic representatives of the nations concerned. Communications between the NATO Planning Board for Ocean Shipping and NATO naval authorities made it possible for NATO to organize and protect its shipping outside as well as inside the NATO area. This was no substitute for the worldwide system of naval commands and shipping control officers by means of which Great Britain and her maritime allies had conducted the 'sea affair' in 1939-45, but it was better than nothing. Better, indeed, than the over-centralized Soviet system. The advantage of flexibility and initiative enjoyed by the NATO Shipping Councils was in stark contrast to the difficulty the Soviet Union's representatives had in obtaining permission to act, as they so often felt that the situation demanded, in the light of local knowledge of rapidly changing circumstances.

The second set of differences, in the general conditions of the war at sea, between the Second World War and Third, was technical. The most important new factor was the advent of nuclear-powered submarines. Able to go two or three times around the world without having to refuel or replenish, and not having to show any part of themselves above water (except momentarily for navigation or communication purposes), these were potent instruments of sea power. That is to say, they were potent instruments of sea power in the negative sense, namely, of the power to deny the use of the sea to a hostile country or coalition. To the positive side of sea power, submarines could contribute a good deal less. A French naval officer had aptly described nuclear-powered, missile-armed

submarines as 'myopic and brutal'. In placing such reliance upon a huge submarine force as the main instrument of her putative sea power, the Soviet Union underlined, one might think, its own 'myopic and brutal' character. For the quintessence of sea power, exemplified *par excellence* by the British Empire in its hey-day, is the positive contribution which it can make to peaceful and growing international trade. Maritime strike aircraft, although the reverse of myopic, were if anything more brutal than submarines. The latter at least could operate, in certain circumstances, with due regard for humanity, using minimum force and helping survivors to safety. This a shore-based aircraft could never do. In 1985, therefore, the Soviet Union at last had to face certain facts. The possession of enormous ship-sinking power, together with a huge merchant marine directly controlled from Moscow, was no substitute for the carrying power of the West's ships, freely co-ordinated, under the protection of the Allied navies of the maritime governments whose flags they flew.

This realization did not come easily or quickly to those members of the Politburo and the CPSU who had backed Admiral Gorshkov's line for so long. Why is it, they demanded to know, that every single Soviet or Warsaw Pact ship has been ordered into port? What is the Soviet Navy doing? Supporting the Red Army's operations in central and northern Europe, yes. Supporting 'fraternal' wars in the Middle East, yes. But what about the seaborne supplies needed by our socialist brothers in East and Southern Africa, in West Africa and the Caribbean? As to the Mediterranean, why is it that our shipping, and that of so-called neutral and friendly governments, remains immobilized?

'Do not be impatient, comrades,' replied the Commander-in-Chief of the Soviet Navy. 'Once our gallant Red Army has imposed peace in north-west Europe, and the Americans have come to the negotiating table, you will see how Soviet sea power can become paramount, even as our armies have triumphed on land. You will see that it will be the Soviet Navy which has gained the victory.'

From ARMED FORCES JOURNAL INTERNATIONAL, April 1984: pp. 32,34,36,38,40,43, Schemmer, Benjamin F. "The Pacific Naval Balance." ©1984 by Army and Navy Journal, Inc. All rights reserved. Reproduced by permission for use in the courses of the National Defense University.

The Pacific Naval Balance

Pacific Air Forces' F-15s from Kadena Air Base on Okinawa check out the Soviet helicopter carrier *Minsk*. The scene illustrates the increasingly prevalent combined operations by which the US Pacific Fleet and Pacific Air Forces are countering Russia's Far East build-up.

by Benjamin F. Schemmer

The Pacific theater has been something of a forgotten step-child since America withdrew from Vietnam and Pentagon planners turned their attention back on Europe. As in World War II, Europe again enjoyed first priority. Former Defense Secretary Harold Brown appointed a Special Advisor for NATO Affairs, with no counterpart for the Pacific, while President Jimmy Carter came close to withdrawing most American ground forces from Korea. The western Pacific receded further from American consciousness as the Iranian crisis of 1979 unfolded, as Russia invaded Afghanistan, and as the Pentagon's focus shifted to the Persian Gulf. Not only did America's global strategy hinge on a "swing strategy" that would draw down resources from the Pacific, if necessary, to defend Europe first, but most of the Navy and Marine Corps assets put into the Rapid Deployment Force for Southwest Asia were taken from US forces in the Pacific.

During those years of American preoccupation elsewhere, Russia has built up its military strength in the Pacific Basin to the point where it could probably now fight a two-front war. American forces would be stretched thin to combat simultaneous conventional wars in Europe and Asia, but US global strategy no longer depends solely on its ability to use its forces in the Pacific as an unspoken strategic reserve for Europe. One largely unnoticed product of the Reagan Administration's bid to "rearm America" is that the "swing strategy" has been quietly abandoned.

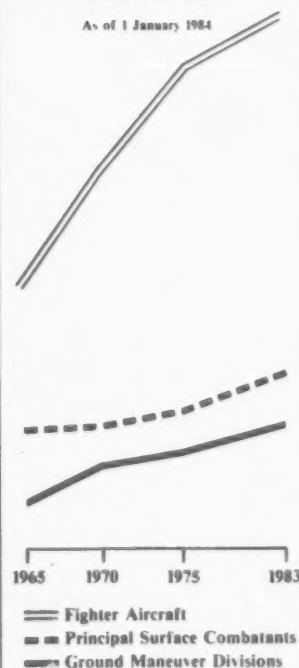
The stakes in the Pacific are too large to permit otherwise. While Pentagon planners and journalists have concen-

trated on trans-Atlantic and Persian Gulf affairs in the decade since Vietnam,

Growth of Soviet Forces in the Far East

(Approx. 30% of Total Soviet Forces)

As of 1 January 1984



Source: Military Posture FY 1985, Organization of the Joint Chiefs of Staff.

the Pacific has emerged as America's largest economic trading partner.

Asia's trade with the United States has exceeded that of the European Economic Community, for instance, for over 12 years—and now exceeds it by 53%. More recently, America's Asian-Pacific trade became larger than all of America's trade with the European continent as a whole. The Pacific now accounts for 30% of all US foreign trade, \$137-billion dollars worth in 1983. It is the largest of all America's trade regions today, even excluding that share of Middle East oil which flows through the Indian Ocean. The Pacific Basin has become vital to America's economic well-being. The region is vast, stretching from the West Coast of the United States to the southern tip of Africa, from the Arctic to the Antarctic, and includes both the Pacific Ocean and the Indian Ocean, or roughly 50% of the Earth's surface. America's trading partners in the Pacific are scattered throughout it: of the \$137-billion traded last year, 45% was with Japan, 9% with the Republic of Korea, 7% with Hong Kong, 6% with Australia and New Zealand, 3% with the People's Republic of China, 4% with South Asia, 12% with Taiwan, and 13% with the Philippines and other ASEAN nations [Association of Southeast Asian Nations, including Thailand, Malaysia, Singapore, Indonesia, and the Philippines].



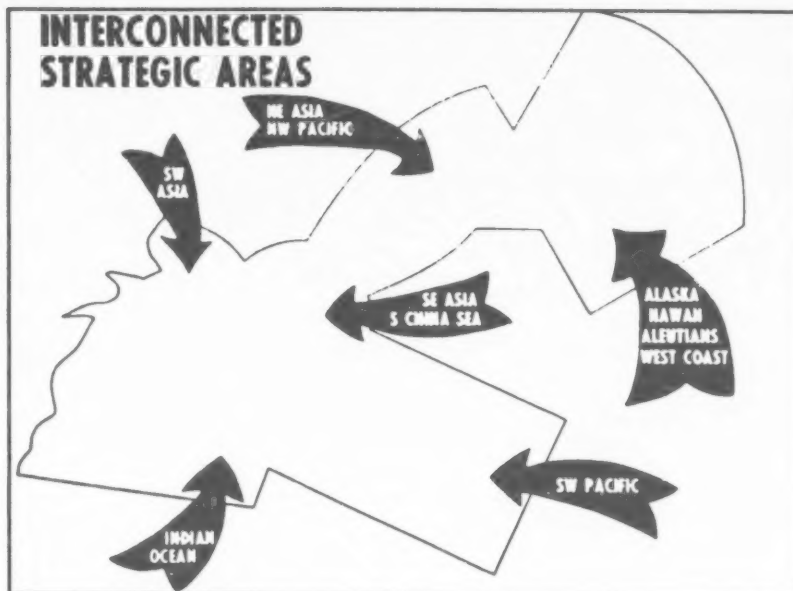
Admiral Crowe, Jr., recently

The US Pacific Command, headquartered at Camp H.I. Smith, HI, is responsible for protecting American interests within those nations. Its Commander-in-Chief, Admiral William J.

invited *AFJ* to revisit the Pacific, our first trip there since the Vietnam War. The region has changed immensely, but the geography hasn't.

Military deployments can take weeks. It takes over 25 days, for instance, for a ship to steam from San Diego to the northern Arabian Sea. The span of control is immense. If the Commander-in-Chief of US Air Forces Europe had his headquarters as far away from the "front line" as the Pacific Air Forces' forward operating bases are from Hickam AFB, HI, General Billy M. Minter would be in downtown St. Louis instead of Ramstein AB in West Germany. PACOM's commanders have to watch over five interconnected, but distant strategic areas: the Indian Ocean and Southwest Asia to their west; the Southwest Pacific, Southeast Asia and the South China Sea; Northeast Asia and the Pacific Northwest; and the Aleutian-Alaskan-Hawaiian-West Coast corridor to their east.

The world's six largest armed forces are in that region—Russia's, China's, Vietnam's, India's, North Korea's, and



the United States'. And, as General Jerome F. O'Malley, Commander-in-Chief

of Pacific Air Forces, points out, five of those six countries have had to go to war within the past 11 years. "It could be argued," O'Malley adds, "that the sixth one, North Korea, is at war all the time." Five of America's seven regional defense treaties are with nations in the Pacific Basin.

Russia's Pacific naval presence has increased about 80% since the mid-Sixties, while the US' has either gone down or remained constant at best, even disregarding the Vietnam build-up. Whereas the Soviet Union had about 50 surface combatants in Far East waters then, there are close to 90 today. Its Pacific fleet has become the *largest* of Russia's four fleets. With about 800 ships, submarines, support vessels, auxiliaries, patrol craft, and landing craft, it comprises about 40% of the Soviet navy, with about one-third of all Soviet submarines, 27% of all naval aircraft, 31% of all combatants, and roughly 30% of Soviet naval manpower.

The character of Russia's naval presence is changing as dramatically as is its size. Admiral Sylvester R. Foley, Jr., the Commander-in-Chief of the US Pacific Fleet, told *AFJ* late in January that Russia's Pacific fleet *used* to have "the leftovers, the cast-offs from the other fleets." Today, he notes, that fleet has "the most modern of ships" and "the latest of equipment." And, he points out, their exercises integrate the Soviet air arm with naval activities "to a much greater degree than they've ever done in the past" with much "more sophisticated exercises."

To illustrate Admiral Foley's point



Soviet Pacific Fleet Strength In Relation to Total Soviet Navy

	North Sea	Baltic Sea	Black Sea	Pacific Fleet	Total Soviet Navy
Surface Combatants					
Helicopter Carriers	1	0	1	2	4
Cruisers	10	3	13	13	39
Destroyers	19	12	16	20	67
Frigates	48	27	47	55	177
Total	78	42	77	90	287
Submarines					
Strategic Attack	43	6	1	31	81
Total	142	26	23	91	287
Total	190	32	24	122	368
Amphibious	11	24	25	22	82
Amphibious Warfare	0	30	35	30	95
Underway Replenishment	25	10	25	25	85
Other Support Ships	75	35	45	60	215
Total	379	173	231	347	1,130
Other (Mine Warfare, Intelligence, Auxiliaries, Patrol Craft, etc.)	225	405	350	455	1,435
Grand Total	604	578	581	802	2,565
Naval Aircraft					
Tactical	100	135	100	150	485
Tactical Support	—	—	—	—	75
Recon/EW	85	45	35	80	245
Antisubmarine Warfare	145	50	100	145	440
Utility	95	45	170	65	375
Total Aircraft	425	275	405	440	1,620
Personnel	119,000	107,000	101,000	134,000	461,000

Source: Defense Intelligence Agency, November 1983.



Admiral Foley about the increasingly modern character of those forces, in 1979 Russia moved its Kiev-class helicopter carrier *Minsk* to the Pacific, and the *Novorossiysk* joined it in February, thus giving the Pacific half of Russia's aircraft carrier strength. Russia's ability to deploy them in well-protected surface action groups is growing. Since 1978, for instance, three Kara-class guided missile, antisubmarine warfare cruisers have joined its Pacific Ocean naval force. And the Soviets now have 91 attack submarines in the Pacific, according to Headquarters, CINCPACFLT. That is well over two times the number of US attack subs covering the same waters and includes the nuclear-powered, modern Victor III attack boats as well as the Charlie I-class nuclear-powered cruise missile subs.

Typical deployments of all these forces are shown on the map below. On any given day, 25 to 30 ships and submarines are operating in the Pacific outside of Russia's home waters.

Not shown on the map is that for the third time in two years, the Soviets recently stationed an intelligence collector off the Washington State coast to monitor the activities of the Navy's new Trident SSBN base at Bangor, WA. Officers at headquarters for the US Pacific Command told *AFJ* that the ship will "probably become a permanent intelligence-collection station for the Soviets."

Russia's Pacific fleet also includes the Soviets' largest contingent of naval infantry, an 8,000-man division based near Vladivostok. Twenty-two amphibious ships, smaller than their US counter-

parts, are available to deploy them. Their force projection capability in a region as vast as the Pacific, however, is sometimes questioned. Dennis Gormley argued in a late-1982 issue of *Survival*, for instance, that Russia can only project "influence" rather than "power" to any area more than 3,000 miles from its own borders. Others note, however, that 85% of the world's population falls within such an arc.

Soviet naval aviation forces in the area have grown by 50% in the past 15 years, numbering about 400 aircraft now. Soviet land-based tactical air has been building steadily in the Far East and Northwest Pacific as well. Since the late 60s, Russia has added about 600 fighter aircraft there, bringing the total number to more than 1,700, plus 350 bombers. They are hardly an obsolescent air force. In the last three years alone, the Soviets have upgraded nearly three times as many modern fighters in the Far East as the US Pacific Air Force has in its entire 235-aircraft inventory.

The Russian aircraft are ranging farther out than ever before. Some, like the MiG-23 Flogger, can strike US bases directly, while PACAF's F-16s and F-15s can't hit Soviet bases without refueling. Even adding the 635 US Navy and Marine aircraft that belong to Pacific Fleet, plus about 1,000 from Japan, Korea, and Australia, tactical air numbers favor the Soviets.

The Russian aircraft are heavily concentrated in the Far Eastern military districts and Kamchatka Peninsula, and this is part of the threat that Lt. Gen. Charles L. Donnelly, Jr., Commander of Fifth Air Force at Yokota AB, Japan, faces. (He is also responsible for air operations in Korea.) Even with its F-15s based far south at Kadena Air Base on Okinawa, and the F-4 Wild Weasels at



Lt. Gen. Donnelly

Clark AB in the Philippines, Pacific Air Force could be outnumbered about two-to-one against the Soviets even if all Navy and Marine tactical aircraft in the Pacific were put under Donnelly's operational control. While Fifth Air Force will add two F-16 fighter squadrons at Misawa Air Base in northern Japan beginning in mid-1985, the Soviets are deploying their first-line fighters farther south now. Last year, about 20 MiG-23s deployed to the Soviet Burevestnik airbase on Etorofu. The island lies 75 miles northwest of Hokkaido and is part of the northern Japanese Kurile chain which Russia occupied after WW II. Fifth Air Force's base at Misawa is about 450 miles from the airfield at Burevestnik, from which the Soviets can reach Tokyo. Early this year, Japan's Defense Agency announced that a small group of MiG-31 fighters had also deployed on Sakhalin.

In addition to the 40 supersonic, strategic air force Backfire bombers which Russia has deployed in the Far East since 1978, more than 30 Soviet naval aviation Backfires, which carry the AS-4 long-range antiship missile, have deployed at Alekseyevka on Russia's east coast since 1980. The Japanese Defense Agency reported that some of those Backfires were sighted over the Sea of Japan in late 1982 and three more, along with a Tu-16 Badger, were sighted there again last September, west of Honshu Island. Two of the Backfires were carrying AS-4s. (Japan's Air Self Defense Force scrambled 929 times in 1982 and something under 700 aircraft in 1983 because of such flights, as well as those by Soviet-built, land-based North Korean air forces.)

Those Backfires, *AFJ* was reminded by the PACOM staff, "can operate against the sea-lanes as far away as Midway, Guam, and the Philippines, and return to their Far East bases without refueling."

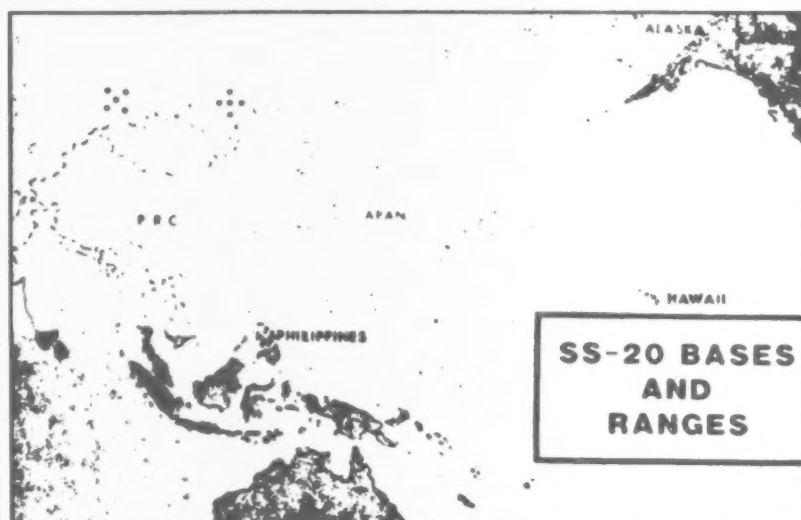
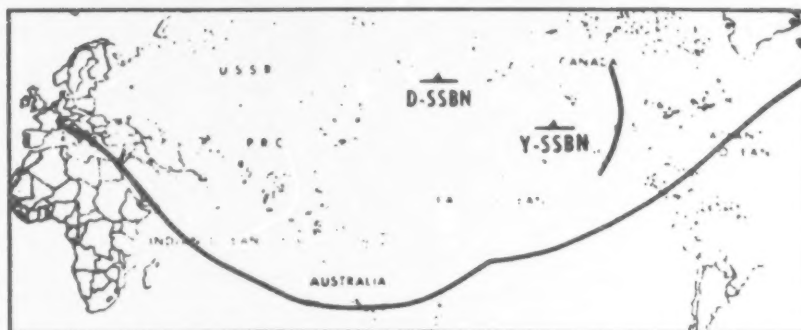
Close to 40% of Russia's SSBN nuclear-powered ballistic missile subs are deployed in the Pacific. Early last year, according to the Defense Department's *Soviet Military Power II* (Mar 1983 *AFJ* "Extra"), they included 10 Yankee-class subs (whose shorter-range missiles have them deploy off the West Coast of the US) and 14 Delta-class subs, whose longer-range missiles permit patrols close to the Soviet Pacific fleet's home ports at Vladivostok (about 700 miles northwest of Tokyo) and at Petropavlosk, on the Kamchatka Peninsula, roughly 1,550 miles north of Tokyo. Last November, the Defense Intelligence Agency says, Soviet SSBN deployments in the Pacific had increased by two boats, and in February



the US Pacific Fleet listed a total of 31 ballistic missile-equipped submarines. The targets these SSBNs can cover are shown on the right.

There are also now at least 135 Soviet SS-20 intermediate-range, nuclear ballistic missiles deployed in the Far East, each with three warheads, and, the intelligence staff of US Pacific Command says, another site is under construction. Prime Minister Yasuhiro Nakasone speculated publicly last year that some of the SS-20s may now be targeted on Japan. (The target coverage of the SS-20s in the Far East is also shown on the right.)

Stanley Karnow, a veteran Far Eastern correspondent, speculated in a recent *Philadelphia Inquirer* article about Russia's motives behind its rapidly increasing Pacific deployments. Karnow concluded the Soviets are hoping to scare Japan, fostering doubts about the wisdom of Japan's steady but slow defense build-up and supporting "neutralist elements ready to compromise at any price." As Karnow put it, Russia wants to demonstrate that the USSR now has the means to block the sea-lanes that carry Japan's oil from the Middle East and Persian Gulf, an energy loss that would paralyze Japanese industry. (Japan now gets approximately 60% of its oil from the Persian Gulf, and the Republic of Korea about 75%. Both countries are now stockpiling a significant strategic oil reserve, but neither could survive long without new energy supplies.)



Relative Strength of US and Soviet Naval Forces in the Pacific, 1984

Naval Ships	United States			USSR Pacific Fleet
	West Pac 7th Fleet	East Pac 3rd Fleet	Total Pacific Fleet	
Aircraft Carriers				
Attack	2	4	6	0
Helicopter	1	5	6	2
Cruisers	2	15	17	13
Destroyers	6	25	31	20
Frigates	14	31	45	55
Total	24	80	105	90
Submarines				
Strategic	•	•	3*	31
Attack	9	31	40	91
Total	9+*	31+*	43	122
Amphibious	6	26	32	22
Underway				
Replenishment	5	25	30	25
Other Support Ships	3	7	10	60

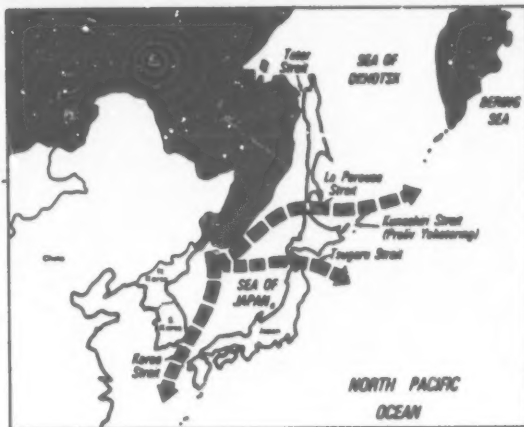
Sources: CINCPACFLT for US; Defense Intelligence Agency for USSR.

*Deployment location of three US SSBNs is classified.

Russia's new naval base at Cam Ranh Bay in Vietnam carries a special message to some Japanese, who remember that the Tsarist fleet used to refuel there. But that was en route to Russia's defeat by Japan in 1905. Russia looks much stronger in the Pacific today.

Since the 1979 Sino-Vietnamese border war, Russia's access to and use of Cam Ranh Bay has increased steadily. Soviet SA-2 and SA-3 missiles have been installed to defend it. Two high-frequency listening stations have been built to track US and Allied naval units operating out of the South China Sea and into the Indian Ocean. An 8,500-ton floating dry dock deployed there in 1982, along with two floating piers. The dry dock is large enough to service a Russian cruiser. Roughly 20 Russian ships now use Cam Ranh Bay regularly, allowing them to deploy in the South China Sea or to sail through the Malacca Straits into the Indian Ocean with far greater flexibility and ease than from Vladivostok, about 2,200 miles to the north.

In mid-November, Russia deployed a small squadron of Tu-16 Badger aircraft to the airfield at Cam Ranh Bay (about nine planes as of January), an unprecedented deployment of nuclear-capable bombers outside the Soviet Union in the Pacific region. They are the only Russian strike aircraft deployed anywhere in



Key Choke Points for USSR Pacific Fleet

the world beyond Soviet borders. They now provide the Soviets with a capability to strike and interdict the vital sea lines of communications throughout Southeast Asia. Several Bear reconnaissance aircraft have operated from the airfield since 1979.

Admiral Foley told *AFJ* that he characterizes Cam Ranh Bay as a "surge base" for the Soviet Pacific Fleet, a "warm water outlet for them" that serves most importantly as a "surge base to the Indian Ocean."

Its significance is better understood remembering that the distance from Vladivostok to Cam Ranh Bay is 2,200 miles and from Petropavlovsk to Cam Ranh Bay is approximately 3,800 miles. These two cities are Russia's main Pacific ports, but both are ice-covered about half the year. The ability of the Soviets to use Cam Ranh Bay eliminates the 10 steaming days required to get into equal position with the United States to project forces into the Indian Ocean. Also, being positioned at Cam Ranh Bay alleviates Russia's chokepoint problem between Vladivostok and the open ocean, shown at the upper left. Finally, Cam Ranh Bay provides the Soviets another resupply base for their forces in the Indian Ocean should they lose existing resupply facilities.

A second major Soviet goal in the Pacific, Karnow suggests, is to "intimidate China, which is striving to improve its ties with the United States," by suggesting that America lacks the means to match Russia's build-up—and thus is "undependable." In the 15 years between 1965 and 1980, the number of Soviet divisions opposite China has doubled, US intelligence analysts point out, while Soviet deployments of tactical, fixed-wing aircraft have more than doubled. (Secretary of State George Schultz wrote last summer in the *Asia-Pacific Defense Forum* that the ground force increase during this period has been from 20 to over 50 divisions.) It is generally believed that there are now 52 Soviet divisions along that border.

Russia's Pacific fleet now adds impressively to Soviet reminders of its growing military power in Asia. While it is hard to measure, there is some evidence that Russia may be achieving at least some modest success in its policy of intimidation. Compare, for instance, what the Japanese government says to its public about US and Soviet presence in the area. In a late-1983 pamphlet on the "Defense of Japan" published by Japan's Defense Agency, this is all that is said of "US Forces in the Region":

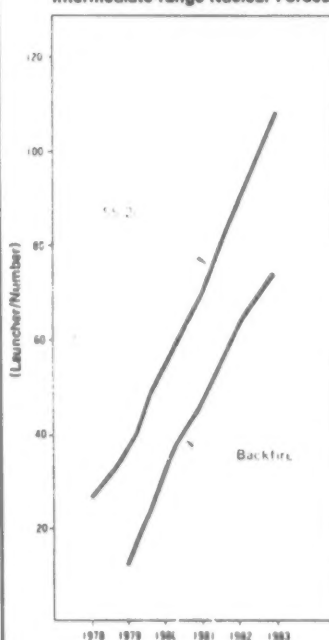
Following her withdrawal from Vietnam, the United States has drastically reduced her armed forces in the Western Pacific. Since then, the quality of US forces in the region has improved, but quantity remains unchanged.

At the same time, events have impelled the United States to shift some Western Pacific forces to the Indian Ocean, in the wake of Soviet intervention in Afghanistan. As a result, US forces in Japan's region of the Western Pacific have been, in effective terms, reduced.

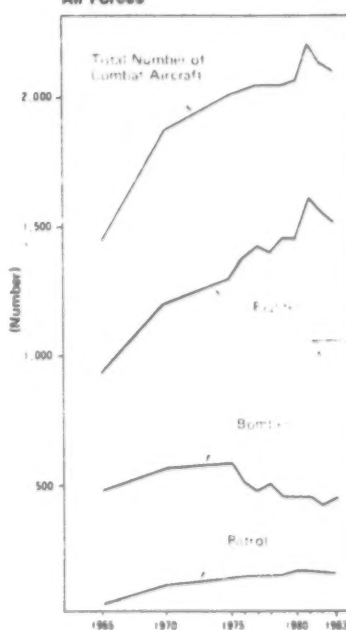
The pamphlet's next section says, in

Trends of Soviet Far Eastern Forces

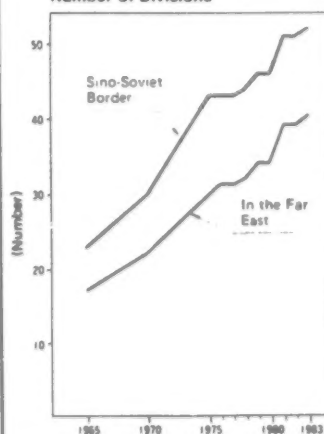
Intermediate-range Nuclear Forces



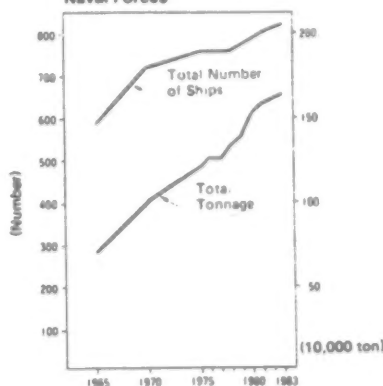
Air Forces



Number of Divisions



Naval Forces



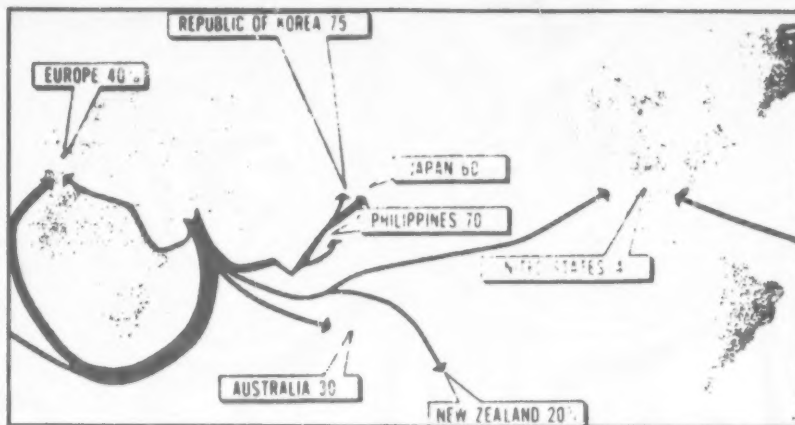
contrast, "Soviet military activity near Japan has, accordingly, increased" and gives several examples of that presence.

Last October, Japan's Defense Agency published an English-language summary of its defense policies and budget. The document contained the four charts on page 40 showing the build-up since 1978 of SS-20 missiles and Backfire bombers in the area, and since 1978 of Soviet air, ground, and naval forces.

About the only thing the same document said of US forces in the area was this:

In the face of such moves, the US is making efforts to modernize its fighting forces and to strengthen its posture in order to maintain and improve the credibility of its deterrence in this area.

The pamphlet was, presumably, intended to promote public support of the modest defense budget increases Japan decided on early this year. But it illustrated vividly that the Russians are getting their message across—ironically, with a lot of help from the government



The Northwest Pacific is heavily dependent on Persian Gulf oil.

agency most responsible for Japan's self defense.

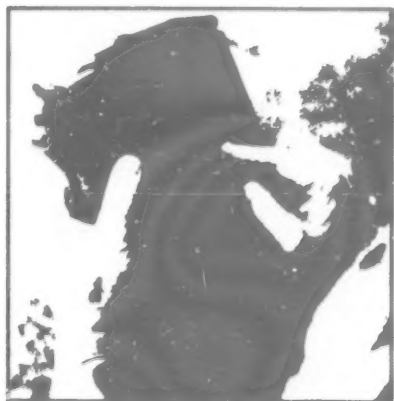
On the pages which follow, *AFJ* interviews Admiral William J. Crowe, Jr., on his assessment of the Pacific balance, regional stability, and America's military challenges in Asia. In forthcoming

AFJ issues, we'll take a close look at what his subordinate commanders are doing with American allies in the region to counter Russia's increased Pacific presence. The military balance and US forces in Korea will be covered in a separate issue. ■☆☆

Memos

More Litton DCTs

LITTON'S DATA SYSTEMS DIVISION recently received an additional \$16.1-million from the Naval Electronic Systems Command for extended production of hand-held, digital communications terminals (DCTs) and peripheral equipment for the Marines and Air Force. The Navy exercised its option to have Litton produce the third-year increment of a four-year contract calling for eventual production of 1,553 terminals and support equipment. So far, Lit-



ton has been awarded \$46-million of the projected \$62-million pact. The five-pound terminals, developed by Litton and the Marine Corps, can transmit and receive numbers, letters, symbols, and graphics over standard military radio or communications wires.

SMAWs for USMC

MCDONNELL DOUGLAS was awarded a contract in mid-March from the Naval Surface Weapons Center for production of the Marine Corps' Shoulder-launched Multipurpose Assault Weapon (SMAW). The \$20-million agreement is for 15-months of full-scale production of 6,000 launchers and 15,000 rounds. Based on the Israeli B-300 weapon system, the SMAW is an 83 mm rocket system, with a special high-explosive warhead developed by the US Navy.

CH-47D Unit On Line

FEBRUARY 28 MARKED THE INITIAL OPERATIONAL CAPABILITY date for the Army's first CH-47D Chinook helicopter unit. The 159th Assault Support Helicopter Battalion of the 101st Airborne Division at Ft. Campbell, KY, received its 24th modernized, Boeing Vertol-built, D-model helicopters, which are conversions of that firm's earlier A-, B-, and C-model Chinooks.

The first CH-47D was delivered to the 101st in February 1983, and the unit is expected to have its full complement of 48 such aircraft by mid-1985.

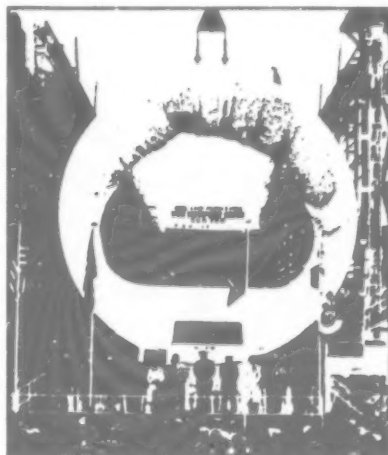
Boeing Vertol is delivering two CH-47Ds per month to the Army, and expects that rate to increase to three per month later this year. (See related story, p. 30.)

The conversion process includes the retrofitting of such items as new engines and composite rotors, with an eye to-

wards boosting performance and reducing operation costs.

Newport News Keel

NEWPORT NEWS SHIPBUILDING laid the keel early in March for the *Newport News* (SSN-750), the yard's 17th Los Angeles-class nuclear powered at-



Newport News Shipbuilding lays keel of city's namesake, SSN-750 *Newport News*.

tack submarine. The vessel, which will displace 6,900 tons, is scheduled to be launched in 1986 and delivered to the Navy in 1987. The Service is requesting \$3-billion in FY85 to purchase four more SSN-688-class subs and is projecting another \$3-billion in FY86 for an additional four. ■☆☆

From MARITIME STRATEGY AND THE NUCLEAR AGE, 1984: pp. 185-192. Till, Geoffrey. ©Geoffrey Till. Reproduced by permission for use in the courses of the National Defense University.

(b) Securing command of the sea

Doubts about the wisdom of whole-heartedly concentrating on the requirements of decisive battle as a means of securing command of the sea have been reinforced, in the eyes of many observers, by recent developments. The probable length of war at sea, they say, would encourage navies to move immediately to the multifarious tasks of exercising command, instead of seeking out their opposite numbers for some preliminary encounter. Technology would also render obsolete the whole idea of a cohesive battle fleet. In such a case the purposeful destruction of the enemy's naval forces would be a difficult task either to encompass or even to imagine. For such reasons one commentator observed recently: 'Most analysts would agree that except for possible conflict along the sea lines of communication, the days of battles on the high seas are gone for ever'.¹²

This, however, does not appear to be the view taken by either of the world's two major navies. Admiral Gorshkov wrote, 'The battle always was and remains the main means of solving tactical tasks'. This view seems amply confirmed by recent Russian naval construction, which, in their new cruisers, and particularly in the new 32 000-ton nuclear-powered battle cruiser *Kirov*, indicates some stress on the capacity for surface action.

American doctrine follows the same traditional lines. Admiral Hayward recently said, 'In a war at sea the most rapid, efficient and sure way to establish the control of essential sea areas is to destroy the opposing forces capable of challenging your control of those seas'. Western analysis, he added, sometimes tended to forget the necessity for offensive action because NATO tended to think in terms of 'scenarios that were essentially defensive and reactive in nature - convoy escort on the North Atlantic SLOCs (sea lines of communication), and that sort of thing'. It was necessary to 'impose maximum attrition early in the war, on the heart of Soviet offensive capability, the ships, aircraft and submarines capable of attacking our own forces and shipping'.¹³ Very evidently there is little here to upset the shades of Mahan.

What contemporary critics probably have more in mind is less the

fact of battle, than its style. Battle fleets would obviously not proceed in parallel lines pounding each other into oblivion, as occasionally they did in the past. But to assume that this implies that there would be no battles in the future is to repeat the mistakes of some commentators of the interwar period who argued that the putative decline of the battleship somehow meant the decline of battle.

Any future battle at sea would be a particularly diverse affair of sub-surface, air and surface engagements (probably in that order of respective lethality). It would cover a much wider area of sea than before. Competing fleets would not line up to have a shoot-out but would engage in 'carefully orchestrated activities involving widely dispersed, complementary and supportive forces'.¹⁴ While the range of the new weaponry and modern procedures of command and control would restore some semblance of unity to the naval battleground, battle would be a much more diffuse affair. Probably it would be more fleeting too, with much more stress on the first salvo and the first strike. It is also likely to be very intense with high casualty rates, even if tactical nuclear weapons were not used. Admiral Holloway said:

In a conflict with the Soviets I would expect very heavy losses to our carrier forces if nuclear weapons were used. If nuclear weapons were not used, I would predict about a 30 to 40 per cent attrition of our carriers. We have no figures, statistically, because we have no view into the future with the infinite set of scenarios in which we could go to war.¹⁵

The anti-carrier stress of many Soviet naval dispositions and their tactical doctrine of the 'close embrace', however, make such predictions fairly secure.

Moreover, Soviet doctrine does not distinguish as clearly between nuclear and conventional weaponry as does the Western; this may imply fewer inhibitions about 'going nuclear'. There is, however, little in the public literature about what the consequences of this for the future of battle at sea might be. But it seems likely to make battle more costly. 'A special feature of the sea battle is that it has nearly always been waged to destroy the enemy', commented Gorshkov. 'The equipping of the forces of the fleets with nuclear weapons is further accentuating this feature.'¹⁶

Contemporary naval thought seems to pay little attention to the way in which inferior naval forces may conduct modern versions of the kind of fleet-in-being strategies discussed earlier. In the American case, of course, this mainly reflects a post-war tradition of predominance. The Soviet Navy, on the other hand, has devoted much thought to the conduct of useful naval operations in adverse conditions, but Gorshkov is doubtless aware that too glowing an account of such possibilities is

hardly likely to help the construction of a first-class fleet of the kind he clearly wants.

Nevertheless, certain modern techniques do seem to come into this category even though the fleet-in-being label may not be used to cover them. They include deliberate attempts to influence an adversary's military decisions by the conscious manipulation of his perceptions of one's sea-control capabilities. In this sense, alarmist stories about the Soviet navy can give them more actual military effectiveness than their strength really warrants. Deception is another quite similar technique. Stansfield Turner wrote:

Assertive sea control objectives do not necessarily demand destruction of the enemy's force. If the enemy can be sufficiently deceived to frustrate his ability to press an attack, we will have achieved our sea control objective. Forces routing, deceptive/imitative devices, and other anti-search techniques can be deployed, often in combination with other tactics.¹⁷

Modern forms of blockade, however, have been discussed more explicitly – especially in Western naval literature. The necessity for 'denial to enemy forces of access routes to open ocean areas' (now sometimes called 'containment') is a major Western preoccupation.¹⁸ Action in the northern gaps between the Greenland-Iceland-United Kingdom and Svalbad-Norway lines against the possibility of units of the Soviet Northern Fleet attempting to break into the North Atlantic seems a not unlikely contingency for NATO maritime forces to prepare for.

Admiral Stansfield Turner has discussed the idea of 'Sortie Control' – that is of

bottling up an opponent in his ports or on his bases... today's blockade seeks destruction of individual units as they sortie. If we assume an opponent will be in control of the air near his ports, sortie control tactics must primarily depend on submarines and mines... a most economical means of cutting of a nation's use of the seas or ability to interfere.

A second blockading technique is 'choke point control'. 'Sometimes' wrote Turner, 'the best place to engage the enemy is in a geographical bottleneck through which he must pass.' The advantage of this procedure is that it can use units which would not survive for long in sortie control operations nearer the enemy's bases.¹⁹

Soviet naval theory has the corresponding mirror image of this problem. The need for Russia to make her 'break through to the sea'²⁰ so as to defeat encirclement and wield her scattered fleets as a cohesive

whole is a constant if implicit theme of Gorshkov's writings. Some observers have detected in Gorshkov's remarks about the way in which the occupation of vital coastal regions in the past has often facilitated the establishment of command in adjacent areas, a suggestion that amphibious operations (against Norway, Svalbad, Iceland?) would be an important part of any Soviet anti-blockade strategy.²¹

The use of new labels for blockade and counter-blockade operations should not conceal the fact that these are traditional activities with familiar aims and problems. Although the mere fact of technological advance means that there would be great differences in execution if not purpose, there seem likely to be similarities too. Modern blockades, like the old, will doubtless involve much work by small units, mines and the like, will have an important surveillance function and will continue (especially in northerly latitudes) to be affected by the weather. Because they, too, are unlikely to be wholly reliable and, in any case, are helpless against enemy units already out, modern fleet commanders would probably face problems well known to their predecessors. Just as the British Admiralty of 1914-18 had to decide whether to put its flotilla craft with the Grand Fleet or into the direct protection of its merchant shipping, so would their successors have to think about the relative proportion of effort to devote to the task of blocking the northern gaps on the one hand, and to that of directly protecting Atlantic communications on the other. New navies seem to have old problems.

(c) Sea control

Most analysts maintain that recent developments have made it more difficult to secure command of the sea. Gorshkov wrote, 'It will be seen that the period of keeping the dominance gained at sea tends to shorten and the struggle for gaining it becomes even tougher'.²² This partly reflects perceptions of the impact of the new technology on surface naval power. Missiles, torpedoes, mines, land-based aircraft, even in the hands of non-industrial states, can make it noticeably more hazardous for bluewater navies to pass through or operate in sea areas within reach of land. Politico-legal restrictions on the freedom of the maritime powers to use the sea as they wish are also likely to create extra inhibitions and difficulties, although in the absence of coercive power to back them up, they are not likely to be decisive in war time.²³

For such reasons as these many modern maritime strategists have been uncomfortable about the continued use of the phrase the 'command of the sea', which they think too absolutist in tone. Such a view is plainly behind the following exploration of types of sea control by Admiral Eccles:

TYPES OF CONTROL OF THE SEA BY AREA AND BY TIME²⁴

1. *Absolute control (command of the sea)*
Complete freedom to operate without interruption. Enemy cannot operate at all.
2. *Working control*
General ability to operate with high degree of freedom. Enemy can only operate with high risk.
3. *Control in dispute*
Each side operates with considerable risk. This then involves the need to establish working control for limited portions for limited times to conduct specific operations.
4. *Enemy working control*
Position 2 reversed
5. *Enemy absolute control (command of the sea)*
Position 1 reversed.

So, 'command of the sea' is now out and 'sea control' is in. According to Stansfield Turner:

This change in terminology may seem minor but it is a deliberate attempt to acknowledge the limitations on ocean control brought about by the development of the submarine and the airplane. . . . The new term 'Sea Control' is intended to connote more realistic control in limited areas and for limited periods of time . . . it is no longer conceivable, except in the most limited sense, to totally control the seas for one's own use or to totally deny them to an enemy.²⁵

It might be reasonably objected that most traditional maritime strategists regarded command of the sea as an essentially relative concept anyway, as we have seen. But the substitution of the new for the old labels may be justified as a useful reminder that the whole thing is more difficult now. It should, though, not be taken to mean that past experience and past reflection on 'command of the sea' are now irrelevant. Far from it. In Gorshkov's view, 'such a category of naval arts as the gaining of dominance at sea retains its topicality and therefore the elaboration of it, in all its aspects relevant to the present, forms one of the most important tasks of naval science'. And the value of historical comparison and illustration for this 'elaboration' is evident throughout Gorshkov's works.²⁶ He uses history to develop the differences between strategic and tactical dominance and to show how the destruction of enemy forces has led on to other things.

The extent to which the Soviet Navy has accepted the notion of the command of the sea, however, is still a matter of some controversy. In the best traditions of medieval scholasticism, there have been several

thorough investigations of what exactly the Russians mean by the various terms they use for this concept.²⁷ These investigations indicate that they too have broad and narrow variants of 'command of the sea'. But while geographic and other constraints may have forced them to take a markedly limited view of the concept on some occasions in the past, current fleet operations and construction programmes suggest increasingly extensive perspectives on the matter. The whole issue in fact is a useful reminder of the way in which a navy's interpretations of abstract concepts like this inevitably take on a form appropriate to its real world circumstances. But although the form of the concept may change over time (and from one country to another) its essential character will often be found to have remained, as in this case, basically the same.

Sea control evidently has two complementary dimensions; 'sea assertion' or 'sea use' and 'sea denial'. The first has to do with the ability to use the sea for traditional purposes. Stansfield Turner lists four such purposes:

1. To ensure industrial supplies
2. To reinforce/resupply military forces engaged overseas
3. To provide wartime economic/military supplies to allies
4. To provide safety for naval forces in the Projection of Power Ashore role.²⁸

These obviously relate specifically to the United States, but similar lists apply to other Western countries. The manifest reliance of NATO on sea supply and reinforcement means it must have a particular interest in sea use.

Gorshkov, however, was at considerable pains to establish that the Soviet Union, as a great maritime nation, also has a legitimate interest in sea use. The very evident Soviet commitment to ocean-going ships with heavy displacement and high endurance, their *Kiev* class carriers and, possibly, the *Kirov* battle cruiser indicate the intention to turn such aspirations into reality. The defensive capacities of such ships also suggest a level of resilience often associated with ambitions for sea use.

If so, this is a relatively new departure, for the Soviet Navy in the past has generally been said to have a strictly 'sea denial' role. Here the objective is not to use the sea oneself, but to prevent the enemy from doing so. Sometimes, in a manner vaguely reminiscent of some variants of the fleet-in-being strategy, the mere presence of naval forces may have useful results in this manner. 'Soviet Navy ships are constantly on the ocean, including the stamping grounds of the NATO strike fleets', wrote Gorshkov in 1970. 'The presence of our ships in these regions ties the Imperialists' hands and deprives them of opportunity freely to interfere in the people's internal affairs.'²⁹

More usually, though, 'sea denial' is regarded essentially as

guerrilla warfare at sea. The denying naval commander strikes at a time and place of his choosing to achieve maximum surprise; he does not have to stand his ground toe to toe with the enemy but instead hits and runs. In this way a markedly inferior force can successfully thwart a superior force.³⁰

The inventory of 'sea denial' weapons tends to be offensive in character, and its ships of the 'fire and forget' variety.

Several points need to be made about the new taxonomy of sea control. First, it does not actually appear to be 'new' in any substantial sense. 'The object of naval warfare must always be directly or indirectly to secure the command of the sea, or to prevent the enemy from securing it', wrote Corbett after all.³¹ Accordingly, the problems regarding the concept of command noticed earlier (the degrees of its necessity, relativity and so forth)³² apply here too. This is particularly true of the vexed matter of the actual sequence of maritime events. While logically control must be secured before it can be exercised, in practice the two processes may often have to be conducted simultaneously as Gorshkov pointed out. This may be particularly true of a short war; although it may be safer for NATO to remove Soviet Naval threats before the reinforcement convoys sail, time and events on the European mainland may not allow such stately procedures.

This fact has reinforced the notion that it may no longer be necessary to strive after sea control anyway: 'since combat activities had become swift and productive', wrote Gorshkov, 'the forces waging a struggle at sea did not need the creation of favourable conditions'.³³ Certainly even in the past it was no means unknown for two sides to use the sea and studiously avoid encountering each other's main forces (such as in the Black Sea during the Second World War). It is not inconceivable that the same might happen again. Even so, it would doubtless be better to have a sea control capacity and find one does not need it, rather than the other way about. Accordingly, a fleet that knows it will have to use the sea should probably be prepared to fight for its control.

A second general observation about 'sea assertion' and 'sea denial' is that these should evidently not be regarded as alternatives, but as complements. Both navies appear to see them in this latter light. The way these two fit together as far as the Soviet Union is concerned has been lucidly explained by Robert Herrick:

Soviet writers for many years have talked about zones of defense. The Soviets hope to command the sea within a couple of hundred miles of their coasts. In these zones, they could use all their small fast craft, surface ships and PT boats, and even their expensive missile

artillery. Beyond these zones – which would include their peripheral seas – the Barents, the Baltic, the Black, and the Sea of Japan – they have an area in which they hope to contest us in command of the seas. And beyond that, there is what they call the open-ocean zone, where they have to practise sea denial, because they cannot support their submarines with surface forces until they have more carrier-based aircraft.³⁴

Evidently this sea assertion-denial spectrum is another way of expressing the fact that command is a matter of degree in time and place. The further the fleet operates from the main source of its strength, or the weaker it is, the less ambitious can be its aspirations for sea use and the more likely it would be to content itself with a sea denial strategy rather than sea assertion.

Finally, it bears repeating that sea control should not be regarded as an end in itself but simply as a means to an end. Sea control, wrote Admiral Crowe, is the 'pre-eminent function of the US Navy because it is a pre-requisite to the successful conduct of other types of naval operations and to the support of US military forces deployed overseas'.³⁵ But there is nevertheless a tendency in American naval thinking to conflate the many functions of maritime power into four 'missions' (strategic deterrence, sea control, projection and presence) or even simply to two (sea control and projection). This effectively runs together the two logically discrete procedures of securing command and exercising it, the means and ends of maritime strategy respectively. This could be a very dangerous form of intellectual shorthand if it led people to suppose that sea control was an end in itself. Voices have accordingly been raised (from time to time) in warning against this practice. In 1948, for instance, Vice-Admiral R. L. Conolly commented: 'I believe we err in advancing the proposition that "Control of the Sea" is an end in itself. It is the *exploitation* of this control that is important'.³⁶ His reminder is evidently as useful now as it was then. But, as we have seen, he was by no means the first to make the point.

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General Prize Essay Contest—Second Honorable Mention

Escalation and Naval Strategy

By Captain Linton F. Brooks, U. S. Navy

Maybe we ought to call it our "backward strategy," the proposal to keep our most visible power projection force steaming out of harm's way. But considering that engaging carriers in a forward strategy may promote escalation, we may do better to safeguard the aircraft carriers during the initial outbreak of hostilities and employ them as strategic reserve forces.

War has been mankind's constant companion. Some have been limited in intensity and aims; others have extended to total destruction of one of the combatants. But whether limited or total war, the means of warfare available have been constrained only by the technology of the time, not by any considerations of policy. The notion that weapons could exist but deliberately not be used would have been incomprehensible to most of the military leaders of history. Escalation, if it had any meaning at all, simply meant doing more of the same or doing it over a wider area.

The invention of nuclear weapons and of means for their delivery over great distances changed the nature of war. Within a generation, escalation and escalation control became central components of strategy. The widespread belief that "total" war would result in total destruction for victor as well as vanquished meant that future wars involving the nuclear powers must be limited both in aims and in means. War aims could no longer extend to overthrowing a given government or destroying a given society when that government or society could destroy the victor in the moment of his victory.

The notion of limited war aims has become ingrained in military and naval leaders' thought processes. No serious

student of military affairs, for example, contemplates strategies to forcibly overthrow the Soviet Government or occupy Moscow. War between nonnuclear powers or between a nuclear power and a nonnuclear one may still be total, as was the case between North and South Vietnam. But between superpowers, the need to control escalation in order to survive makes all future wars either limited or suicidal. This need for escalation control imposes two new requirements on military strategy:

- ▶ The strategy should not lead to unwanted escalation.
- ▶ The strategy should not fail catastrophically should escalation occur.

These two principles join a long list of criteria—decisiveness, risk, economy of force, etc.—against which a particular strategy must be evaluated.

Evaluating strategies against these two escalation control criteria is hampered by three factors. The first is the lack of a simple, widely accepted understanding of various escalation stages. Conflict between two superpowers can range from the generally nonviolent form we call peace to an apocalyptic, full-scale exchange of both sides' total strategic arsenals. Many intervening steps are possible. One set of such steps might include:

- ▶ Peaceful competition
- ▶ Tension and crisis
- ▶ Localized incidents involving surrogates or clients
- ▶ War between one superpower and a client of the other
- ▶ Direct conventional war between the superpowers
- ▶ Use of nuclear weapons outside the two homelands
- ▶ Limited nuclear strikes into one another's homeland
- ▶ General nuclear exchange

No two individuals would agree on this precise set of steps—even less on how to measure the demarcation between them. Actually, they are not steps at all, but rather arbitrarily selected points on a rising continuum of violence. There are, however, two distinct escalation boundaries: the outbreak of hostilities and the first use of nuclear weapons. Either represents a qualitative change in the na-

ture of a conflict, a clear instance of escalation. These boundaries are, therefore, appropriate ones at which to evaluate existing strategies against the escalation criteria.

A second factor hampering the evaluation of strategies is the possibility that the first escalation criterion—no unwanted escalation—is irrelevant to naval forces, or perhaps to U. S. forces. Can escalation be controlled in a war with the Soviet Union? Many would argue that it cannot. They espouse one or more of the following arguments:

► The Soviets will not enter a war unless they plan to use nuclear weapons. The question for the Soviets is not *if* the war becomes nuclear, but *when*. Escalation is inevitable, and the prime purpose of the conventional phase is to plan for the nuclear battle. The distinguished French strategist General Pierre Gallois even suggests the war will begin with a Soviet "... attack with highly accurate low-yield nuclear weapons against all the military targets in Western Europe." (John Train, "The Soviet Wedge in Geneva," *Wall Street Journal*, 28 September 1983, p. 74.)

► Even if the Soviets honor their pledge not to be the first to use nuclear weapons, escalation is still inevitable. The conventional force imbalance in Europe will force the United States to escalate. In the September 1983 *Armed Forces Journal*, General Bernard Rogers, Supreme Allied Commander in Europe, said that if NATO is attacked, "... we can only sustain ourselves conventionally for a relatively short time. I will then be forced to ... ask for the authorization ... to use nuclear weapons."

► Even if neither the United States nor the Soviet Union

escalates, escalation still cannot be controlled. Other nuclear powers, the United Kingdom and, especially, France, reserve the right to make their own nuclear decisions based on their assessment. Given Soviet tendencies to view the West as a single entity and Soviet emphasis on mass and preemption, small-scale French or British use will lead to large-scale Soviet response and, in turn, to U. S. retaliation. Thus the French and British not only have the ability to make their own nuclear decision, but also have *de facto* decision-making power over the two superpowers as well.

The final factor complicating the analysis is the doubt that once the nuclear threshold has been crossed, further escalation control is meaningful. The second escalation criterion—strategies should not fail catastrophically should escalation occur—is meaningless if escalation to general nuclear exchange is the inevitable result of any nuclear employment. It is difficult to predict the course of a war once nuclear weapons have been used. The destructiveness of a theater-level exchange may force both sides to reconsider their war aims and seek an end to hostilities. On the other hand, escalation to a massive, homeland-to-homeland strategic exchange is also possible. After all, one purpose of U. S. theater nuclear weapons is to link NATO's conventional defense and the strategic arsenal of the United States.

These complicating factors are inherent to the nuclear age. The uncertainty over whether escalation will occur, and whether it can be controlled if it does, is an important

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component of deterrence. The United States rejects a pledge of "no first use" of nuclear weapons because this uncertainty helps keep a conventionally more powerful Soviet Union in check. Such uncertainty may appear to make examination of the naval contribution to escalation control trivial or irrelevant. Such an attitude is understandable and common. It is also wrong.

Although we cannot guarantee that escalation will not occur for reasons unrelated to the Navy, neither can we be certain that it will. Soviet leaders who have spent their lives speaking and hearing of the immense dangers of nuclear war will not make the nuclear decision lightly, no matter what their peacetime doctrine may suggest. The rapid collapse of NATO, forcing a U. S. nuclear decision, also may not come to pass: history is replete with "short war" predictions that proved to be wrong.

Even if nuclear weapons are used, further escalation need not be automatic. Despite their civil defenses and their growing ability to threaten U. S. intercontinental ballistic missiles, Soviet leaders must realize that a retaliatory strike by the United States would effectively destroy their country. That the United States will suffer similar or greater destruction will be of little consolation. Thus, as long as NATO's war aims do not extend to the political destruction of the Soviet Union, Soviet leaders are unlikely to take those steps that could lead to its physical destruction.

In this confusing world of escalation control, nothing is assured; thus, nothing, including the impact of naval forces, can be ignored. Since it cannot be certain that es-

calation considerations are irrelevant, and since, if they are relevant, ignoring them could lead to disaster, U. S. naval strategy must be evaluated against the two escalation criteria.

In the strict sense, there can be no such thing as a maritime or naval strategy in today's world, any more than can there be separate land strategies or nuclear strategies. The emergence of air power and joint operations in World War II doomed separate land and sea strategies; the concept of escalation control has doomed separate conventional and nuclear ones. Still, it is useful to examine the components of national strategy separately. This article focuses on the naval component.

Modern naval strategy is not manifested neatly in a single document. It exists in war plans and exercises and is articulated in the speeches of naval leaders and the discussions and deliberations of their staffs. Yet, the outlines of U. S. maritime strategy for a war with the Soviet Union are well known. Our strategy is a strategy of global, conventional war, fought in concert with both our Atlantic and our Pacific allies. It is a forward strategy, seeking to keep the battle in the opponent's backyard. It is an offensive strategy, seeking out the enemy rather than waiting for him to seek us out. And it is a strategy dominated by the aircraft carrier.

Although there are main offensive arms of the Navy—carrier battle groups, attack submarines, and amphibious forces—our strategic discussions revolve around the carriers. The carriers are sent to provide peacetime signals of U. S. concern, a modern form of traditional gunboat diplomacy. The carriers support forces ashore in limited war. And, should general war come, the carriers are expected to attack and destroy the Soviet Navy, including, when required, Soviet Naval Aviation at bases within the Soviet Union.

In a crisis not directly involving the Soviet Union, U. S. plans are clear. Aircraft carriers will be sent to the scene of the crisis, ideally to demonstrate concern and resolve, but implicitly to apply force if needed. Since no ground forces are involved and carriers at sea are relatively invulnerable, such crisis deployments do not induce escalation. The United States may *choose* to escalate as a matter of policy; U. S. principle only requires that a given strategy not lead to undesired escalation.

Should escalation to actual hostilities occur, the strategy of using carriers as the primary means of displaying U. S. power will not fail catastrophically. The presence of a carrier battle group allows the United States to conduct combat operations, but does not oblige it to do so. Because sea-based forces are inherently mobile, they can withdraw; because they are highly survivable against Third World threats, this withdrawal is a matter of choice, not necessity. Thus, if the strategy fails, it will not do so

catastrophically. Both escalation control requirements are met.

Contrast this strategy with one employing amphibious forces, the other applicable offensive force. Should *this* strategy fail, the failure is more likely to be catastrophic since either withdrawal or high combat losses will be viewed as a humiliating U. S. defeat.

Current naval strategy is thus consistent with the dictates of escalation control at the low end of the spectrum of violence—possible hostilities during conventional crisis with third powers. Obviously, the extent to which escalation control principles are followed at the high end of the scale in a war with the Soviet Union is far more important.

In considering higher order escalation, one must view U. S. aircraft carriers through Soviet eyes. U. S. Navy officers speaking of carrier battle groups might stress flexibility, mobility, or endurance. But the Soviets stress the carrier's nuclear capability. In his book *Sea Power of the State*, Admiral Sergei Gorshkov, Commander in Chief of the Soviet Navy, speaks of the carriers' "... intensive training to deliver nuclear weapons on land targets," referring to them as a "... highly-trained reserve of strategic strike forces in a global nuclear war." With this image of aircraft carriers and the apparent Soviet assumption that the West will be forced to use nuclear weapons first in a NATO-Warsaw Pact war, carriers approaching within strike range of the Soviet Union may be perceived as preparing to launch nuclear strikes. The Soviets, who stress preemption, may elect to beat us to the draw. Thus, forward operation of carrier battle groups seems inconsistent with the first criterion of not inducing escalation.

Forward operations are inconsistent with the second criterion as well. Should escalation occur, the strategy will indeed fail catastrophically. U. S. carriers will be excep-

tionally vulnerable, subject to attack from multiple azimuths where anything less than a leak-proof defense results in failure. The situation is exacerbated today because many important programmed improvements in fleet air defense are still in the future.

Although a strategy based on forward operations of carrier battle groups violates both escalation control criteria, this does not necessarily imply that such a strategy should never be implemented. War is a matter of risk. No strategy is perfect. None will ever have all the characteristics we might desire. But in light of escalation control considerations, a forward strategy should be followed only if the benefits clearly outweigh the risks or if there is no other alternative.

This does not suggest that the aircraft carrier should be eliminated. If the carrier did not exist, she would have to be invented. The question is how the carrier's flexibility and capability should be employed in a war with the Soviet Union. Some possibilities are obvious. Should Cuba opt for belligerency, carrier assets would be needed to neutralize the Cuban military. Carrier operations in the Mediterranean Sea directly threaten the Soviet Union far less than operations in northern seas and thus are less likely to contribute to escalation. Should escalation occur, carriers are at least as survivable in the Mediterranean as anywhere else, given the prospect of mutual support from the shore and the limited strength of Soviet Mediterranean forces compared to those in the Norwegian Sea or Northern Pacific. Finally, although the Indian Ocean will probably not be a decisive theater of war, a battle group happening to be present at the onset of hostilities could eliminate whatever Soviet maritime threat existed in the area.

Beyond these uses, however, the principal mission of carriers in the early stages of a major war is survival. They form an irreplaceable strategic reserve, whether the war remains conventional or escalates. An extended conventional war will lead to rapid and severe attrition of tactical air power in Europe, thus the limited attack capability of the carriers (limited in relation to the total air power initially available in theater) will become decisive. Should escalation occur, in-theater nuclear assets will be destroyed. The carrier may again prove decisive, both because of her nuclear delivery capability and because that capability, residing in manned aircraft, can be effective against movable or emerging targets. But, in either case, the carrier can perform her decisive role later in the war only if she has not been squandered earlier.

The notion of using the Navy's most visible force as a strategic reserve, whose initial function is to remain out of harm's way, is foreign to the aggressive attitude of successful naval commanders. In addition, gaining congressional support for complex and capable ships that will be employed in a reserve role will be difficult. These drawbacks, however, argue for deeper study and better articulation of the concept, not its rejection.

Despite the value of employing carriers as a strategic reserve, operation of carrier battle groups in close proximity to the Soviet homeland may indeed prove essential early in the war. Secretary of the Navy John Lehman, for example, has noted in the November 1983 *Armed Forces*

Journal that "... the law of the land ... includes as binding law Article V of the NATO Treaty, which requires ... [the United States] to treat an attack on Norway as if it's an attack on Long Island" If there is sufficient strategic warning to put Marine reinforcements in place before hostilities and if sufficient land-based air power can be allocated to Norway, this obligation need not involve carriers. If not, battle group operations will be necessary to defend northern Norway, thus risking escalation. Therefore, to ensure the second escalation criterion—strategy should not fail catastrophically—is met, the ability of carrier battle groups to survive, operate, and fight in a nuclear environment must be improved.

Improved training, tactics, survivability, hardening, and capabilities against nuclear-armed cruise missiles provided by nuclear SM-2 surface-to-air missiles are essential. (Survivability refers to protection from multiple kills, from destruction by near misses, and from the long-range effects of some nuclear weapons; it does not imply a futile attempt to make ships impervious to direct nuclear hits.) All these programs are more or less ongoing; they should be supported and, where possible, accelerated. Since hardening improvements will be slow in coming, the Navy should consider grouping those ships that have had survivability improvements into nuclear-capable battle groups. Initially, it may prove wise to have all such battle groups positioned in the Atlantic Ocean where there is the least choice about forward operations.

The U. S. Navy's declaratory policy need not avoid a proclaimed willingness to operate in Soviet waters. It is both wrong and dangerous to give the Soviets the impression that we will cede any area of the world to them by default. The danger, however, is that the U. S. Navy will become a victim of its own rhetoric. Since naval leaders are uncomfortable with the concepts of escalation and of nuclear war, they may find themselves accepting a high probability of escalation, not as a conscious, calculated risk, but because they have failed to think through the problem. Although they may—and should—declare in public that "the Navy will go anywhere to do its job," in professional deliberations they must add "so long as a careful calculation of the military benefits and the risks, including the risk of escalation, shows the decision to be a wise one."

Nuclear weapons present difficult questions of escalation control, questions for which no answers are fully satisfactory. They seem to confer benefits on our adversary and none on us. Yet, nuclear weapons must be considered and be a part of U. S. planning. The challenge of devising a credible strategy that will uphold the two escalation criteria is immense. The consequences of not doing so, however, are simply too great.

Captain Brooks has spent the bulk of his career in billets associated with the submarine force. Ashore, he has served in the Office of the Secretary of Defense and on the staff of the Chief of Naval Operations. His writings have previously been published in *Proceedings* and the *Naval War College Review*. Captain Brooks is currently Deputy Director, Strategic and Theater Nuclear Warfare Division, Office of the Chief of Naval Operations.

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THE FALKLAND/MALVINAS ISLANDS CRISIS

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ISSUE DEFINITION

On April 2, 1982, an Argentine naval force seized and occupied the British crown colony of the Falkland Islands and its dependency of South Georgia. (The Argentine government had occupied previously unpopulated South Thule, the southernmost island in the South Sandwich chain, also a dependency of the Falklands, in 1976.) Argentina and Great Britain have both claimed sovereignty over these islands since Spain withdrew its garrison in 1811. Having occupied the islands, Argentina attempted to consolidate its political and military hold over the Falklands, inhabited by approximately 1,800 English-speaking people who identify themselves as British subjects. Meanwhile, the British government, outraged and embarrassed by what it viewed as an illegal seizure, dispatched a naval task force to restore British control. On May 21, Britain began landing troops to recapture the islands, and on June 15, Argentine troops surrendered to British forces that had surrounded the last Argentine line of defense, Port Stanley.

The United States, caught between its closest ally and a major Latin American nation with which it had been trying to improve relations, tried to mediate the dispute in the hope of finding a peaceful resolution. The United States was aware that the British decision to retake the Falklands by force created Latin American bitterness toward the Western Alliance and potentially could cause Argentina to move closer to the Soviet Union or to be less supportive of U.S. policies in Central America. The United States was also aware that a prolonged British military presence in the Falklands could ultimately diminish Britain's ability to maintain its NATO commitments. Nonetheless, on April 30, after Argentina refused another U.S. peace overture, then Secretary of State Haig announced that the United States would impose economic sanctions against Argentina and provide material support for British operations in the South Atlantic. Argentina and other Latin American countries have been strongly critical of this policy.

Now that Argentina has surrendered, the U.S. will have to reexamine its policy toward Argentina and decide how its best interests may be served.

BACKGROUND AND POLICY ANALYSIS

The Falklands, a group of treeless, windswept islands, are located about 350 miles east of Tierra del Fuego, off Argentina's extreme southeast coast. The Falklands comprise 2 main islands and 200 smaller ones, and occupy an area of 4,700 square miles. There are fewer than 2,000 islanders, mostly of British origin, half of whom live in the capital, Port Stanley. The islands have been a source of contention between Great Britain and Argentina since Spain withdrew its garrison in 1811. Argentina has continuously claimed the Falklands under a provision contained in its emancipation from Spain, wherein territories under Spanish administration would transfer to the newly independent nation. At the time Argentina received its independence in 1816, the islands were uninhabited. The islands shortly thereafter became a base for British and American sealing and whaling industries, and temporary settlements by British nationals were established. In 1820, the Buenos Aires government claimed the islands and raised the Argentine flag. From that

date, Argentine appointed governors to administer the islands, until an American warship expelled the Argentine soldiers and administrators in 1831, after complaints from sealers about Argentine interference with their trade. The remaining Argentine inhabitants were expelled by a British warship in 1832. The following year, Britain claimed sovereignty over the Falklands and established a permanent colony.

Beginning in 1964, Argentina asserted its claims to the Falklands in the United Nations, calling for direct negotiations with the British government. In 1965, the United Nations Decolonization Committee ordered Britain and Argentina to begin negotiations toward a resolution. Little progress toward that end, however, was made over the next 17 years.

The Argentine Point of View

Argentina has long contested British claims to sovereignty over the Falklands -- which the Argentines call the Malvinas Islands. Its seizure of the islands on April 2, Argentina contends, followed protests for the past 149 years and fruitless negotiations for the past 17 years -- negotiations which Argentina states that it unsuccessfully tried to accelerate recently.

Argentina holds that the British settlement of islands cannot constitute the basis for claims of sovereignty because the British settled there after forcibly expelling Argentine settlers in 1833 and because Britain had previously recognized, in a series of treaties, Argentina's prior historical claims to sovereignty over the islands. It also contends that Britain is acting there as a colonial power. Argentina implies that various documents of the United Nations and of the Organization of American States (OAS) calling for the end of colonial possessions in the world and in the Western Hemisphere tacitly support its position.

In a speech on April 5, 1982, to the OAS permanent council, Argentine Foreign Minister Nicanor Costa Mendez debated the right of the islands' 1,800 inhabitants to self-determination under international law. He argued that the inhabitants do not constitute a "people," asserting that most of them are employees of either the British government or the Falkland Islands Company, which he described as a tool for promoting empirical interests, and that many are only temporary residents.

Argentina's assertions of sovereignty over the islands have long been a point of intense nationalistic sentiment. Sovereignty over the islands and their dependencies also form the basis for Argentina's claim to the Antarctic, as Argentina traces its territorial claim there along a diagonal drawn from the South Sandwich islands. (If Britain lost its claim to the Falkland Islands and dependencies, it would also jeopardize some of its claims in Antarctica.) Interest in exploitation of the Falklands' natural resources has intensified in recent years as Argentina has begun awarding risk contracts to international oil companies for off-shore exploration along its southern Atlantic coast. Test wells reportedly have produced crude from a geological formation believed to extend to the islands, suggesting that sizable deposits may lie around the islands. The British reportedly contested one of the contracts as it included part of the islands' territorial waters. The Argentines reportedly also have expressed interest in fishing those waters.

Costs to the Argentines

Ten weeks of war battered an already debilitated Argentine economy, and the defeat at Port Stanley may well destroy Argentina's current military junta.

In the hours after Argentina acknowledged a "cease-fire," not a surrender, thousands of Argentines staged a hostile demonstration outside of the government house, demanding that the military fight on and calling for the custer of President Leopoldo Galtieri. Within the government, military officers fought for their individual and collective political futures. At stake is the military's future role in government, and its position as an institution in the Argentine political system, which are threatened by civilian opposition unless officers find an formula acceptable to civilian groups. Whatever the immediate outcome of the power struggles within the military, analysts say that the war has probably shortened the period of transition to civilian government by stiffening civilian opposition to military rule.

The war reportedly appears to have directly cost at least half a billion dollars for the defense of the islands and took an indirect toll on production, investment, and consumption. Increased domestic interest rates reportedly hurt the agricultural sector and were almost prohibitive for new investment, were attributed to the war. Some sales and import taxes were raised to finance the war, as the domestic budget deficit grew. Rising inflation and unemployment, in part attributable to the war, dampened consumer demand. Reportedly, businesses began to go bankrupt as the war entered its third month.

Argentine Support

Support for Argentina's actions was strongest from Latin American countries, although even that support was tempered. Most Latin American nations affirmed their support of Argentine claims to sovereignty over the islands, but did not extend that support to Argentina's use of force in asserting those claims. The British landing on the islands and the U.S. declaration of support for Britain, however, raised at least the rhetorical level of support for Argentina. Although reports abound that Latin nations aided Argentina with military equipment, there is little official acknowledgement by Latin American governments of such support to date.

- Brazil reportedly sold Argentina EMB-111 Bandeirante airplanes, but other than that apparently maintained a neutral posture. A Gallup poll taken in Brazil at the end of April showed that 87% of Brazilians wanted Brazil to stay out of the dispute. Reportedly, Brazilian concern about securing European financing for its balance of payments deficit deterred it from backing sanctions against Britain under the Rio Treaty. Early in the dispute, however, Brazil reportedly refused Britain permission to refuel its ships in Brazilian ports. According to one newspaper report, the Brazilian generals ruled out sending their troops to help Argentina.
- Cuba reportedly sent Argentina electronic surveillance,

anti-jamming and submarine detection equipment.

- The Peruvian government reportedly advanced three peace plans in order to allay pressures from the armed forces to supply equipment and troops to Argentina. Peru reportedly supplied Mirage parts to Argentina, and sent Mirage planes.
- Publicly, Venezuela and Panama were Argentina's strongest backers. Venezuela decided not to participate with the U.S. in scheduled naval maneuvers in June because of the crisis. Venezuela reportedly sent spare parts for Mirages to Argentina.
- Bolivia reportedly offered military assistance.
- Uruguay banned any direct or indirect contribution to the war efforts of either country.
- The Soviet Union, which initially took a neutral stance, abstaining in the vote on UN resolution 502 calling for an Argentine withdrawal, later began an intensive propaganda effort supporting Argentina. Trade deals, including the provision of Soviet enrichment services, were signed by the two countries after the Argentine invasion. The Soviet Union's failure to make expected grain purchases during the crisis, however, is one factor driving down Argentine grain prices. Reportedly, the Soviet Union may have provided the Argentines with intelligence on British movements. Argentine government officials also stated that they might purchase military equipment from the Soviets.
- The People's Republic of China noted its solidarity with Argentina.
- Although Israel has in the past sold arms to Argentina, it reportedly pledged not to make new arms deals with Argentina. Israel reportedly said, however, that it would deliver on previous contracts. British news reports claimed that Israel delivered aircraft parts and missiles on new contracts.
- South Africa denied reports that it was sending missiles, military spare parts and ammunition to Argentina in Uruguayan cargo planes.
- U.S. officials stopped an Ecuadorian airline transport plane on May 26 at Kennedy Airport which was carrying bombs and munitions that were not listed on its manifest. Speculation was reported that the material was bound for Argentina. Ecuador reportedly supplied Argentina with Mirage spare parts.
- Libya reportedly supplied Argentina with aircraft spare parts for Mirage planes.

The British Point of View

Argentina's seizure of the Falkland Islands was humiliating and frustrating to many Britons, for whom the incident served as another reminder of the decline of British power. Moreover, there was widespread anger over the government's handling of the crisis, especially after reports from British intelligence sources indicated that the government knew of the existence of an Argentine invasion force (though not its intent) several days prior to the invasion. Public and parliamentary unhappiness over the incident created a major crisis for Prime Minister Margaret Thatcher's government. Lord Carrington, Britain's Foreign Secretary, and two of his principal aides resigned because of strong parliamentary criticism.

In reaction to the Argentine invasion, Britain adopted several non-military measures, including breaking diplomatic relations with Argentina, freezing Argentina's financial assets in Britain, suspending new export credits, and banning Argentine exports to the United Kingdom. Although official British statements reflected the government's foremost desire to resolve the conflict by diplomatic means, Mrs. Thatcher made it clear from the outset of the crisis that "the Falkland Islands and their dependencies remain British territory.... It is the Government's object to see the islands are free from occupation." On April 7, Britain declared a 200-mile war zone around the Falkland Islands. Defense Secretary John Nott told the House of Commons that from the morning of April 12, "any Argentine warships and Argentine auxiliaries found within this zone will be treated as hostile and are liable to be attacked by British forces." Defense Secretary Nott confirmed, "If we have to fight we will, and we are not going to fight unless we win."

On April 25, the British government carried out its threat to use force, if necessary, when its troops retook the South Georgia Islands and captured an Argentine submarine off the islands' coast. On May 1, the British government commenced military operations on the Falklands, and on May 21 began landing troops on the islands. British forces then began retaking Argentine positions at San Carlos, Darwin, Goose Green, Douglas, Teal Inlet, Bluff Cove, Two Sister Hills and Mt. Langdon in their move on the capital, Port Stanley. On June 14, British troops moved into the city limits of Port Stanley and the Argentine commander surrendered with virtually no resistance.

The British argue that the Falklands, one of Britain's last remaining colonies, is effectively and legally theirs. The British inhabitants, who have been living on the island for the last 149 years, are the only "natives." The islanders are fiercely opposed to Argentine control, having voted seven to one in last year's legislative council session to freeze sovereignty negotiations between Britain and Argentina.

The British government had taken a position of willingness to negotiate the sovereignty question with the Argentines as late as February 1982, with the reservation that Great Britain must abide by the wishes of the 1,800 islanders before any changes over control of the island are considered.

Most foreign governments urged both British and Argentine to practice restraint in settling the Falklands dispute. The UN Security Council voted on April 3 in favor of a resolution condemning the Argentine invasion and calling for immediate withdrawal from the islands. Governments who showed support for the British response include the following:

- Canada, Australia, and New Zealand banned imports from Argentina. New Zealand also banned exports and Canada withdrew all government support for exports. Hong Kong stopped all imports except those destined for China. Canada and Australia banned military shipments to Argentina.
- The European Community condemned the Argentine show of force and approved a total ban on imports from Argentina, and embargoed military supplies to Argentina. (The Falkland Islands are specifically defined to be a part of the territory of the European Community by the Treaty of Rome).
- The United States suspended on April 30 all military exports, new Export-Import bank credits and guarantees and commodity credit guarantees. The President also directed that the United States respond positively to British requests for material support.
- Japan, on May 4, suspended all Argentine imports.
- Israel said it would make no further arms deals with Argentina, but would deliver all existing contracts. Britain questioned Israel's role in supplying arms and training Argentine pilots.

NON-MILITARY MEANS OF RESOLUTION

Political and Economic Sources of Leverage

Argentina

Argentina's leverage on Britain to negotiate a settlement conceding sovereignty over the islands in the long run is limited largely to the costs and risks of administering the islands. Among Argentina's sources of leverage to promote a settlement favorable to Argentina are:

- Domestic political and economic costs to Britain of maintaining a military presence in the islands.
- Difficulty and expense to the British of replacing the supply, communications, and transport networks with the islands that now run out of Argentina.
- Difficulty for Britain in again engaging in military activities 8,000 miles from home base.

Great Britain

Sources of leverage for the British and its supporters against Argentina include:

- Economic sanctions. The ban on Argentine imports to the European Community and Japan could have serious consequences for Argentina, which exported more than \$2.3 billion worth of goods to the EC alone in 1980. (Total trade between Japan and Argentina amounted to about \$1 billion in 1981.) Latest figures show that the Common Market enjoys a \$457 million surplus in its trade with Argentina. The EC ban means that Argentina would lose as much as \$40 million in trade each week with Western Europe. Britain immediately froze Argentine assets, banned Argentine imports to Britain, and cancelled new commercial contracts. Although the effects of the U.S. economic sanctions are not yet known, some analysts believe that they will be minimal.
- Bans on military sales. Argentina, largely with the help of West Germany, has aspirations of becoming Latin America's leading military power and an important arms merchant for the Third World. The Argentines have already received diesel submarines and frigates from West Germany. According to a recent Der Spiegel article, German naval contracts have run into the billions in the last 5 years. Argentina has also purchased substantial quantities of military equipment from Italy, France, Austria, Israel, and the United States. In 1981, Britain sold \$22 million in arms to Argentina.
- Loss of British cooperation in joint exploration and development of potential off-shore oil resources.
- Resistance of the local Falkland population to Argentine sovereignty and control.
- Military defeat of Argentine forces on the Falklands.

Potential Mediators

The United Nations

In the long-running dispute between the United Kingdom and Argentina over respective claims to the Falkland islands, the United Nations had played only a marginal role.

Following the Argentine invasion of the Falklands on April 2, Britain introduced a resolution to the Security Council demanding Argentine withdrawal. A resolution -- demanding an immediate cessation of hostilities and immediate withdrawal of all Argentine forces from the Falklands and calling on the governments of Argentina and the United Kingdom to seek a diplomatic solution to their differences -- was passed in the Security Council by a vote of 10 in favor, 1 opposed (Panama) and 4 abstentions (the Soviet Union, China, Poland, and Spain).

After efforts by the United States and Peru failed to yield agreement by Argentina, the United Nations became active in pursuing a peaceful resolution to the conflict. The basic outline of the UN plan included a cease-fire,

withdrawal of Argentine forces simultaneous with the British fleet, and UN administration over the islands while UN mediators conducted negotiations on sovereignty. Neither Britain nor Argentina accepted these proposals. On May 20, UN Secretary General Javier Perez de Cuellar's aides reportedly said that efforts to mediate a solution had failed. On May 26, the Security Council unanimously approved a resolution requesting Secretary General Javier Perez de Cuellar to try to obtain an immediate cease-fire and to report within 7 days the results of his efforts, but this endeavor proved fruitless as well.

The Organization of American States

On April 8, Colombia requested the 30-member OAS to act as an intermediary in settling the dispute, but discussion on its request was postponed to give the U.S. mediation effort time to continue. With the U.S. abstaining, the OAS approved by consensus on April 13 before the U.S. mediation effort ended, a resolution offering its "Friendly Cooperation" to both Argentina and Great Britain to resolve the dispute. On April 26, the OAS convened the organ of consultation of the Inter-American Treaty of Reciprocal Assistance (Rio Treaty) as a forum in which possible sanctions against Great Britain could be discussed. (The parties to the treaty could take a range of sanctions against Britain, diplomatic, economic, and military, if Britain were seen as committing an aggressive act threatening hemispheric peace. Participation in all sanctions except the use of armed force is binding on the 21 active parties to the treaty, unless they suffer economic hardship from implementing them.)

Argentina, however, lacked the two-thirds vote required to adopt sanctions. Some analysts interpreted Argentina's failure to formally request sanctions against Britain as recognition that they would not be passed. In his opening day speech, however, Argentine Foreign Minister Nicanor Costa Mendez did appeal to the other parties to the treaty to demand British withdrawal from American waters and the lifting of EC sanctions against Argentina. Early on the morning of April 28, the Rio Treaty signatories did adopt, 17-0 (and over the protests of the United States, with the United States, Colombia, Chile, and Trinidad and Tobago abstaining) a resolution which recognized Argentine sovereignty. The resolution, however, fell short of Argentina's desire for a call by the Rio Treaty parties for a British withdrawal. The resolution urged Britain to cease hostile actions in the region and refrain from acts which threaten inter-American peace and security. It also urged Argentina to refrain from actions which would exacerbate the situation. Reportedly against U.S. pleadings, one of the resolution's nine points deplored actions of the European Community and urged it to lift the economic and political sanctions taken against Argentina. On May 29, the OAS Rio Pact countries adopted a second resolution, which again did not invoke sanctions against Britain. The resolution condemned the UK's "unjustified and disproportionate" armed attack, called for an immediate withdrawal of British Forces and urged the U.S. to refrain from aiding Great Britain. It also urged the U.S. and EC to lift measures against Argentina and stated that Latin countries should give Argentina the help they considered appropriate.

The Role of the United States

After failing to persuade General Galtieri, the head of the Argentine junta, to call off the invasion of the Falklands on April 2, President Reagan offered to help in finding a "peaceful resolution" to the dispute. Then Secretary of State Alexander Haig, the primary U.S. mediator, met several times with British and Argentine leaders, but failed to work out a solution

acceptable to both nations. U.S. officials originally extended their friendship to both Argentina and Britain and reiterated America's desire not to be forced to choose sides. Initial U.S. diplomatic efforts seemed to center around ways to satisfy Argentina's demand for sovereignty over the Falklands while allaying Britain's concern about the well-being and status of the 1,800 British subjects living on the islands. Britain refused to negotiate so long as Argentine military forces remained in the Falklands, and Argentina refused to withdraw militarily until Britain acknowledged Argentine sovereignty.

Two options discussed by British and Argentine negotiators in the last decade included a joint British-Argentine government, similar to Franco-Spanish administration of Andorra, and a lease-back plan, under which Argentina would be given sovereignty but Britain would lease the islands for a specified period of time similar to the arrangement Britain now has with Hong Kong. In this second option, some formula for dividing fishing and oil rights would be negotiated.

The major problem with either of these options, or any other alternative that third parties to the dispute might suggest, is that it is politically difficult for any British government to ignore the principle of self-determination, as expressed in the near-unanimous desire by the islanders to "keep the Falklands British." Moreover, any new course in British policy that changes the status of the Falklands will require parliamentary approval. Both past and present efforts to change the Falklands' status suggest that the British Parliament will constitute a formidable obstacle, especially since a recent public opinion poll indicated that 88% of the British population believes that the United Kingdom has an obligation to support the Falkland Islanders.

The United States initially took a position on the Falklands dispute by voting in the majority for the UN Security Council resolution demanding that Argentina withdraw its military forces. Britain regarded this action as support for its position. On the other hand, Argentina, which refused to withdraw its troops, was counting on the United States to dissuade Britain from taking further military action and to get Britain to recognize Argentine claims over the islands. U.S. State Department officials had previously said that America's best interests lay in maintaining close ties with both the Argentine and British governments and that to avoid choosing sides its best course was to facilitate negotiations that would lead to a peaceful settlement. However, after repeated efforts to persuade Argentina to compromise on the sovereignty question, the United States announced that it must take concrete steps to underscore that it "cannot and will not condone the use of unlawful force to resolve disputes." The United States remained willing to assist the parties in finding a negotiated settlement, but its role as a neutral mediator had changed to one of support for the British position.

MILITARY OPERATIONS

Diplomatic negotiations were paralleled by military operations to resolve the dispute, beginning with Argentina's seizure of the territory and followed by Britain's resistance to that action. Military actions included the following developments in April:

- the occupation of the islands by Argentine armed forces, who expelled British authorities after several hours of fighting at Port Stanley in East Falkland and on South Georgia;
- the embarkation of a British naval task force of ships, aircraft, and troops deployed to the South Atlantic to exert military and psychological pressures on Argentina;
- Argentina's garrisoning and fortifying the occupied territory and build-up of troops and military equipment, delivered mainly by airlift;
- Britain's declaration of a maritime blockade of the occupied territories, which could be enforced initially only by Royal Navy submarines reportedly already in the area;
- the recapture of the South Georgia Islands in a limited combat action by British forces;
- Britain's expansion of the 200-mile maritime blockade zone to include declaration of an air quarantine of the Falklands, after the task force arrived in the area; and
- Argentina's declaration of a similar sea/air interdiction zone around the disputed islands and along the Argentine coast.

During the second month of the crisis, more serious military action ensued, in the face of a continuing diplomatic stalemate. Developments in May included:

- British attacks on the Port Stanley airfield and other military targets in East Falklands, followed by naval bombardment of the damaged airfield and air combat between Argentine and British planes;
- British submarine attacks on the Argentine cruiser General Belgrano, sunk off Tierra del Fuego, and British helicopter attacks on Argentine patrol boats north of East Falkland;
- loss of the British destroyer HMS Sheffield, attacked by anti-ship missiles fired from Argentine aircraft, and the first loss of British aircraft in a second attack on the Falklands, involving Britain's first combat fatalities and major equipment losses since the Argentines seized the area;
- Britain's declaration that Argentine combat vessels and aircraft operating beyond 12 miles of the mainland would be subject to attack, and Argentina's threat to attack British ships en route to the Falklands;
- British air and naval attacks and commando raids on East and West Falklands in preparation for invasion, which began

after the breakdown of diplomatic efforts to end the Argentine occupation; and

- landing of several thousand British marines and paratroopers on East Falkland followed by Argentine air attacks that sank two British frigates and the destroyer HMS Coventry and damaged the cargo ship Atlantic Conveyor, with heavy losses of Argentine aircraft.

By early June, British forces were engaged in coordinated sea, air, and land operations to compel the evacuation of the main Argentine garrison at Port Stanley, having liberated the rest of East Falkland from Argentine occupation following recapture of Darwin and Goose Green. These operations succeeded on June 15, when Argentine forces surrendered. British forces later expelled an Argentine garrison from South Thule, which Argentinian had occupied since 1976.

Military Developments and Options

Argentine Options

If Argentine air power had been fully committed and effectively used in early May, it might have compensated for Argentina's lack of naval capability, to play a decisive role in the military outcome. The Argentine fleet, consisting primarily of aged combatant vessels, was outnumbered by the Royal Navy Task Force (RNTF) and would have had difficulty in military operations against British forces, especially British nuclear-powered attack submarines. Accordingly, Argentina withdrew much of its naval forces from the waters around the Falklands following Britain's declaration of a 200-mile maritime exclusion zone around the Falklands, after having sealifted military equipment and supplies from Argentina to the islands.

The British naval blockade, officially in effect since April 12, came too late to prevent the Argentines from establishing a strong defensive position. After the initial Argentine landing with an estimated 4,500 marines, reinforcements by sea and air increased troop strength to around 13,000, equipped with artillery, armored vehicles and air defense systems. The actual number of Argentine troops on the Falklands and the state of their defenses could not be accurately determined from press accounts, which to a large extent reflected the psychological warfare efforts of the combatants. At the time of the British landing on May 21, the Argentines had numerical superiority in ground forces in the islands, as well as tactical aircraft based on the mainland.

Until early May, the Port Stanley airfield's single 4,000-ft runway was used intensively to airlift supplies and personnel from Argentina. (This is the only paved runway on the islands, although small airstrips have been improvised elsewhere such as one at Goose Green, about 50 miles west of Port Stanley). The utility of Argentine basing facilities in the Falklands was seriously impaired by British attacks at Port Stanley and Goose Green after May 1, which inflicted variously reported degrees of damage to runways and fuel stores.

Withdrawal of Argentine naval forces from the 200-mile zone indicated an assessment that British naval forces, superior in number and in equipment, could overcome Argentine attack at sea. On the other hand, the destruction of several British ships by bombs and air-launched missiles demonstrated that

Argentine air actions against British naval forces posed a major threat. When used in mass attacks, Argentine aircraft were able to inflict serious damage. Despite heavy losses in May, Argentina still had about two-thirds of its operational combat aircraft during early June.

How effective Argentina's tactical air forces could be against British forces in the Falklands depended on many factors, including the numbers of aircraft deployed; their basing options; range/payload, weapons, and avionics capabilities; pilot training in air combat tactics and aerial refueling; weather conditions; and British air defenses. At the beginning of the conflict, Argentina could probably deploy 50 to 60 A-4 attack planes (aged U.S. A-4Bs with limited range and avionics), 40 to 50 Mirage IIIs (French and Israeli-built fighter/attack planes with operating radii of over 600 nmi), several Canberras (aged British long-range bombers), 5 or 6 recently acquired Super Etendards (modern French naval aircraft), and a number of domestically produced Pucara (counter-insurgency aircraft able to operate from grass air strips).

The A-4s and Super Etendards could operate from land bases or Argentina's only aircraft carrier, the Veinticinco (25) de Mayo, a vessel of 19,900 tons full-load displacement (launched by the British in 1943, later purchased and refitted by the Dutch, and sold to Argentina in 1968). Whether Super Etendards could be operated aboard the 25 de Mayo was in doubt, however, and those attacking HMS Sheffield were presumably land-based. The Argentines also used many of their Pucara lightweight counterinsurgency aircraft and a few Italian-built Aeromacchi trainer/attack planes, operated from small airstrips in the Falklands.

Some Argentine combat aircraft could land or take off at Port Stanley, but the air bases at Rio Gallegos on the mainland and Rio Grande on Tierra del Fuego -- about 400 nmi from Port Stanley -- provided longer runways and better support facilities for sustained combat operations. Despite the numerical superiority of Argentine aircraft, their tactical air capabilities were restricted by marginal range/payload factors and lack of previous air combat experience, basing options, and spare parts.

British Options

With much of the Royal Navy Task Force having reached the area by the end of April, and more troops and aircraft arriving during May, several military options were available for the British. While the RNTF could have attacked the mainland in an effort to force Argentina's withdrawal from the Falklands, such actions would have jeopardized the international support that Britain had on this issue, as well as exposing British forces to attack by land-based air forces, which represented Argentina's primary military advantage. Nevertheless, Argentine military bases near the Falklands were obvious military targets, and their destruction was called for by some members of Parliament.

A more feasible option for the RNTF was to impose an air and sea blockade of the Falklands prior to assault on the Argentine forces there. These operations isolated Argentine units on the islands and challenged Argentine control. British efforts to maintain a blockade could be resisted by Argentine naval forces and aircraft (some of which succeeded in getting through), but this option exploited Argentina's major weakness: a sea line of communication between the mainland and the Falklands that was vulnerable to attack, especially by advanced British submarines, and dependence on the Port Stanley airfield as an "air bridge." The 20 Sea Harrier aircraft

initially deployed in the area were expected to have difficulty in enforcing an air quarantine while providing air defense of the British fleet, particularly without long-range radar reconnaissance aircraft. The Sea Harrier force was reduced to about 17 by mid-May, but additional Sea Harriers and RAF Harriers deployed to the South Atlantic by ship and ferry flight maintained a force of some 20 aircraft.

Bombing the airfield at Port Stanley was a major military objective, since this airhead was of such critical importance to Argentina's control of the islands, and its runway and fuel storage facilities were limited and highly vulnerable. Having declared a 200-mile sea/air blockade or "total exclusion zone" around the Falklands (effective April 30), the British first attacked the airfield on May 1, using a single Vulcan bomber operating from Ascension Island (3,500 miles away) to crater the runway. Sea Harriers from the RNTF (about 100 miles offshore) destroyed fuel stores and parked aircraft and also attacked a small airstrip at Goose Green, some 50 miles to the west. The Port Stanley airfield was later shelled by British ships, and a second Vulcan and Sea Harrier attack on these airfields occurred on May 4, when the first Sea Harrier was lost in combat. On May 8, an Argentine C-130 transport, escorted by Mirage fighters, approached Port Stanley -- presumably expecting either to land or to make an airdrop -- but these aircraft turned back when intercepted by Sea Harriers. Although C-130s could use the paved road between Port Stanley and the airfield, and some small planes eluded the blockade under cover of bad weather and by using other airstrips, the "air bridge" to Port Stanley was effectively closed by mid-May.

Another option was to mount amphibious assaults on the occupied islands, as occurred on April 25, when British forces recaptured South Georgia. Some 800 miles east of the East Falklands, the South Georgia dependency was reoccupied at minimal cost in military terms. Preceded by a 12-man reconnaissance party of the Royal Navy's Special Boat Squadron, several hundred Royal Marines landed on April 25 at Grytviken Bay. By April 26, British control of South Georgia was complete, with the surrender of 156 Argentine troops and the capture of one of Argentina's four submarines, without combat fatalities on either side. (See CHRONOLOGY, 05/14/82 entry, on repatriation of these Argentines.)

On May 21, British troops were landed on East Falkland, where they established a base of operations centered around San Carlos Water (50 miles west of Port Stanley; 20 miles north of Darwin). The task force included assault ships with landing craft and 5,000 marines and paratroopers. These forces were later reinforced by a brigade of more than 3,000 troops (two Welsh and Scots Guards battalions and one Gurkha battalion).

Before launching a full-scale invasion of the Falklands, the British tightened the blockade through naval and air action to exert military and psychological pressure on the Argentine regime. The sinking of the cruiser General Belgrano (Argentina's second largest ship) by submarine torpedoes on May 2 just outside the 200-mile blockade zone and Britain's extension of the combat zone to within 12 nmi of the Argentine mainland on May 7 showed that the Argentine navy could not regard the sea immediately around that area as a sanctuary. In any event, the Argentine Navy took no active part in the fighting.

While awaiting the arrival of more troops and aircraft, the RNTF landed small parties of commandos to reconnoiter and harass the Argentines and make contact with the local population. Many of Port Stanley's 1,000 residents had gone into the countryside, where they assisted the British in resistance

to the occupation forces. A British military presence in the islands, working with a "Falkland Islanders Resistance Movement," would have had major political significance in the event of a cease-fire leaving Argentine troops in the islands; however, the British refused to accept such conditions.

In early June, British forces besieged the main Argentine garrison at Port Stanley, after defeating smaller Argentine units at Darwin and Goose Green and along the north coast. The more passable route to Port Stanley was the southern track via Fitzroy. Additional British troops were put ashore at Fitzroy and Bluff Cove under intense Argentine air attack (in which two landing craft were struck, killing 56).

Military Strengths and Weaknesses

Argentina's primary strength was its land-based air forces, which initially had about a 10-to-1 advantage over the British task force total numbers of fighter/attack planes, or perhaps 5 to 1 in operational aircraft. There is considerable question, however, about the extent to which the Argentine Air Force was able or willing to participate in combat on the Falklands. The air force had been thought to be the least enthusiastic about the Falklands campaign. However, its efforts against the RNTF and British forces on East Falkland were conducted vigorously and involved the loss of significant numbers of aircraft. Some elements probably remained committed to the defense of other regions in Argentina. Of the total aircraft inventory, some were unserviceable because of age and lack of spare parts. Having reportedly lost some 60 aircraft during the fighting in May, Argentina was actively seeking to obtain spare parts, fuel tanks, air-launch missiles, and aircraft through the international arms market and friendly foreign governments. The exact nature and success of these efforts cannot be determined. There were rumors reported in the press that Israel had supplied some equipment, including 24 American-built A-4's (re-export of which would contravene the terms of their sale to Israel); however, this was denied by Israel.

The useful combat range of the various Argentine aircraft was is a critical factor. The Falklands were within range of Argentina's mainland-based fighter/attack planes (A-4 Skyhawks, Mirage types, and Canberra bombers), but their combat endurance over East Falkland was limited. By using external tanks and in-flight refueling, the Argentines extended the combat range of their aircraft. In the final battle around Port Stanley, the Argentines also made effective use of light Pucara attack craft, which they flew from grass fields in the West Falklands.

The Argentine Navy's A-4Q Skyhawks (and any Super Etendards that might be operated from the carrier 25 de Mayo) could have added to Argentina's air capability, with a maximum unrefueled combat radius of about 400 miles. These aircraft are roughly equal to the Sea Harrier in air combat range, but they are much less maneuverable and lack the Sea Harrier's rapid-reaction capability and radar and avionics equipment. Sea Harriers were used mainly for fleet air defense, which is the primary mission of this vertical/short take-off and landing (V/STOL) aircraft. Equipped with an excellent radar system and armed with the improved AIM-9L Sidewinder air-intercept missile, the Sea Harrier operates in a short take-off vertical landing (STOVL) mode, with an air combat radius of over 400 nmi and an attack radius of 250 nmi. Normally operating within a range of 100 or 200 mi from their ships and being more fuel-efficient, the Sea Harriers had more combat endurance than Argentine aircraft. (See CRS Issue Brief 78020 and CRS Report 81-180F for discussion of V/STOL aviation and the British Sea Harrier.)

During May and early June, British Harriers reportedly destroyed more than 30 Argentine aircraft, with no Harriers lost in air-to-air combat, although five were shot down by ground fire and three were lost in non-combat accidents. The first loss of a Sea Harrier came on May 4, during the second airfield attack, followed later by two aircraft lost in bad weather. Sea Harrier forces were outnumbered by Argentine aircraft, although the destruction of Argentine aircraft improved the odds.

The RNTF's Invincible and Hermes aircraft carriers embarked with about 20 Sea Harriers. Additional Sea Harriers and Royal Air Force Harriers (similar to the U.S. Marine Corps AV-8A) were later deployed aboard a chartered container ship. These RAF Harriers were also equipped with AIM-9L air-to-air missiles. (It was later revealed that 28 Sea Harriers and 14 RAF Harriers had been sent to the South Atlantic. Of these 42 aircraft, 8 were destroyed, with the loss of four Sea Harrier pilots. Squadrons 800 and 899, with 12 Sea Harriers aboard HMS Hermes, returned to England on July 19, presumably leaving a 22-plane Harrier force in the Falklands at that time).

British troops in the Falklands positioned Rapier surface-to-air missiles (SAMs) and radar systems in the hills around San Carlos, providing much needed air defense against Argentine aircraft, which launched several strong attacks on ships in the Falkland Sound on May 21-25. The Sea Dart and Sea Wolf surface-to-air missile systems provided additional ship defense. In addition to Argentina's numerical strength in the air, their use of Super Etendard aircraft to launch long-range Exocet anti-ship missiles posed the most serious threat to the RNTF. Argentine efforts to acquire more of these sophisticated weapons through other countries and the international arms market might have been decisive in this conflict. The French-built Exocet AM.39 missile has been sold to several countries, including Argentina, Iraq, Pakistan, Peru, and South Africa, and Argentina's current inventory of this weapon cannot be readily determined by foreign observers. The Exocet pointed up the vulnerability of the British task force to long-range missiles from aircraft that could elude radar detection, because of the lack of airborne surveillance capabilities in the combat zone.

Britain's decision to modify 10 Vulcan strategic bombers for conventional operations in the South Atlantic may be viewed as an effort to deter Argentine air operations against the RNTF in the Falklands by posing an air threat to the mainland. In addition to attacking the Port Stanley airfield, Ascension-based Vulcans could attack Argentine ships and mainland bases, thus diverting Argentine aircraft from operations in the Falklands.

The primary British advantage at sea was its submarine force, comprised of advanced nuclear-powered models faster than most Argentine surface combatants. Two of these attack submarines preceded the RNTF on its way to the South Atlantic. Argentine submarines presented a lesser threat, because they were less capable, and because advanced British anti-submarine warfare capabilities were incorporated extensively throughout the task force. Despite this British advantage, it was thought that the two newer Argentine submarines could lie in wait undetected and attack British ships. One of Argentina's four submarines, the Sante Fe (a 1944 Guppy-class U.S. submarine sold to Argentina in 1971), was captured in the South Georgia operation. The remaining three Argentine submarines posed a threat to the RNTF, which might not have been able to locate these submarines in the turbulent seas around the Falklands.

The RNTF included the amphibious assault ships Fearless and Intrepid.

Each of these ships, carrying a number of landing craft, could put a commando group ashore. HMS Hermes and HMS Invincible were also believed to have carried troops. The greatest number of marines (2,000 or more) were transported on the 49,000-ton Canberra, a commercial liner taken over for this purpose. In April, several other cargo and passenger ships were chartered for use by the RNTF, including the liner, Queen Elizabeth II, carrying some 3,000 Welsh and Scots Guards and Gurkha troops. Several frigates and destroyers arriving in late May more than replaced those lost during the fighting.

Although British troops met little resistance by ground forces in the landing areas, the main landing party at San Carlos came under repeated air attacks by Argentine planes, which sank the frigate HMS Ardent and damaged other ships on May 21 and destroyed the frigate HMS Antelope on May 23 and the destroyer HMS Coventry and the Atlantic conveyor on May 25. These air attacks took a high toll of Argentine aircraft and pilots. The British estimate that some 80 Argentine aircraft were lost in combat, with most of these losses occurring after May 21. Some 1,400 Argentines were taken prisoner when the Darwin and Goose Green garrisons surrendered on May 29 to much smaller British forces. These prisoners confirmed earlier speculations about poor morale and living conditions among the Argentine conscripts.

Two months after the arrival of the Argentines in the Falklands, their effective control was confined to outposts on West Falkland and the immediate vicinity of Port Stanley on East Falkland, where resolution of the military situation finally occurred in mid-June.

The Argentine garrison at Port Stanley had been besieged by some 8,000 British troops, who controlled the high ground to the west and made slow but steady progress at shrinking the Argentine defense perimeter. The Argentines were unable to repel the advance, despite escalated air attacks and shelling of British positions and ships.

On June 14, Argentine troops began retreating from British attacks, though there was some sporadic hard fighting. British forces were able to press forward rapidly to the outskirts of Port Stanley, where large numbers of Argentines surrendered. The garrison then indicated its willingness to talk, and Britain responded by ordering its forces to fire only in self-defense. Within an hour, a white flag appeared over Port Stanley, and soon the two commanding officers were talking. Surrender was agreed to at 1 a.m. June 15 (London time).

By the morning of June 15, 11,000 Argentine prisoners of war were under British guard in Port Stanley, and the total number of Argentine troops finally taken amounted to 14,800, according to some early reports. Many of those captured were said to be suffering from exposure, exhaustion, and frostbite. Some had been shot in the feet by their officers to prevent flight. The high number of captured Argentines led some to believe that reinforcements had been slipping through the British cordon.

British casualties totalled 255 dead and 777 wounded, according to the Ministry of Defence, including 18 civilians killed and 18 wounded. In addition, three Falkland Islanders were killed during the final assault on Port Stanley. According to official Argentine sources, Argentina's casualties totalled 516 killed or missing at sea and 1,274 wounded -- Navy, 396 killed or missing at sea and 169 wounded; Army, 65 killed and 1,105 wounded; Air Force, 55 killed. British sources reported higher casualties among Argentine forces, who lost some 200 men at Goose Green alone.

Although Argentina refused to acknowledge officially that the conflict had been terminated by the defeat of its forces in the Falklands, the British government concluded in July that hostilities had in fact ended in the South Atlantic and that all remaining Argentine prisoners would therefore be repatriated. The only British prisoner (a Harrier pilot) was also repatriated in July.

IMPLICATIONS OF THE USE OF MILITARY FORCE FOR THE UNITED STATES AND THE WESTERN ALLIANCE

Because the Falklands dispute has not yet been resolved diplomatically the United States and its NATO allies must be prepared to face a number of potential economic, political and security consequences of such action. These include:

1. Britain already has expended a considerable sum of money to dispatch a task force 8,000 miles to the Falkland Islands. Britain would face additional costs should the need for a sustained naval presence be required in the area. The consequences to Britain of the replacement of losses in ships and aircraft will place severe strains on the already weakened British economy, to say nothing of the strains on new defense plans, including the scheduled modernization of Britain's strategic nuclear force with the purchase of the new U.S. Trident missile system.
2. It is unlikely that Britain would be able to fully meet its NATO responsibilities if a continued military presence were required in the South Atlantic. The United States and/or other Western European powers would be required to take up the slack in order to maintain credible NATO defenses in Europe. Of particular importance, a weakening or loss of British capabilities, notably its surface and anti-submarine-warfare capabilities, would seriously impair NATO's ability to patrol the North Atlantic sea lanes and would be difficult to replace. In addition, Britain undoubtedly would be forced to withdraw its naval contributions to the Western presence in the Indian Ocean.
3. The Argentine military seizure of the Falklands already implies a dangerous precedent for other states involved in disputed territorial claims in Latin America, Spain, the Indian Ocean -- including the Persian Gulf -- and the Pacific. The United States and its Western European allies could find themselves drawn into these disputes either diplomatically, or more seriously, militarily.
4. A military confrontation has increased the

potential for an escalation of the crisis to include other Latin American countries or possibly even the Soviet Union. Such an escalation of the conflict has created a dilemma for U.S. policy with regard to U.S. interests in and commitments to Latin America and Britain/NATO. The U.S. decision to support Great Britain has already proven damaging to our relationships with Argentina and other Latin American countries.

LEGISLATION

H.Con.Res. 328 (Bingham, Seiberling, Pritchard, Findley, Fascell, Solarz, Wolpe)

Urges referral of the issue of sovereignty over the Falkland Islands to the International Court of Justice. Introduced May 5, 1982; referred to the Committee on Foreign Affairs.

H.Res. 441 (Solarz)

Calls for Argentina to comply with UN Security Council Resolution 502, and for the United States to provide full diplomatic support for Great Britain if efforts to resolve the dispute peaceably fail. Introduced Apr. 28, 1982; referred to the Committee on Foreign Affairs. Resolution passed the full House on May 4, 1982.

S.Res. 364 (Pressler)

Expresses the support of the efforts of the United Kingdom to reclaim the territory of the Falkland Islands. Introduced Apr. 19, 1982; referred to the Committee on Foreign Relations.

S.Res. 368 (Moynihan)

Calls for a sense of the Senate that unless Argentina promptly withdraws its forces from the Falkland Islands, the United States should embargo trade between America and Argentina. Introduced Apr. 21, 1982; ordered held at the desk.

S.Res. 382 (Biden)

Resolves that the United States not stand neutral and recognize Britain's right to self-defense to achieve full withdrawal of Argentine forces from the Falkland Islands. Introduced Apr. 24, 1982; called up by unanimous consent. Passed the Senate 78-1 (with 20 not voting) Apr. 29.

CHRONOLOGY OF EVENTS

06/15/82 -- Angry Argentine mobs gathered in the streets and around the Presidential palace demanding President Galtieri's ouster. Police fired tear gas into the crowds.

-- Britain warned Argentina that it would hold up the release of some high-ranking Argentine prisoners of war until the Argentine government agreed to a blanket

declaration that all hostilities in the 10-week war had ended.

- 06/14/82 -- Argentine forces in the Falkland Islands surrendered to the British command at 9 p.m. A total of 14,800 Argentine troops surrendered and were taken prisoner.
- In light of the British advances to within the Port Stanley city limits and the general breakdown of Argentine defenses, the Argentine government authorized the Malvinas commander, Menendez, to hold talks with the commander of the British forces, Jeremy Moore. A de-facto cease-fire was thus established.
- 06/13/82 -- Argentina and Britain reportedly agreed to an International Red Cross proposal that the 600 islanders in Port Stanley be sheltered in a declared neutral zone.
- 06/12/82 -- At dawn, British troops launched a major offensive against Argentine defensive positions to the West of Port Stanley. The British Ministry of Defence reported that their troops consolidated their positions on the high grounds within 3 miles of the capital, controlling Mt. Langdon, Two Sisters Hills and Mt. Harriet.
- British frigate HMS Glamorgan was attacked by Argentine fire. A British Ministry of Defence spokesman reported that 9 men were killed and 17 were injured.
- 06/11/82 -- British journalists reported that at least 43 British troops were killed and 130 wounded when Argentine planes attacked two British landing ships off Bluff Cove on June 8.
- Foreign Minister Costa Mendez stated that all options for a peaceful solution to the conflict had been exhausted.
- 06/08/82 -- Two British landing craft, the Sir Galahad and the Sir Tristram were hit by Argentine aircraft fire along with the frigate HMS Plymouth. Heavy damages and considerable casualties were reported. The British forces claimed to have shot down 4 Argentine Mirages.
- France announced that it would deliver purchased Exocet missiles to Peru only after the conclusion of hostilities in the South Atlantic.
- The British Defense Ministry announced that British forces were firmly established at Fitzroy settlement and Bluff Cove.
- Although President Galtieri later rejected the latest UN peace proposal, he stated that Argentina was willing to agree to a simultaneous withdrawal of British and Argentine troops and to a temporary UN administration of

- the Malvinas Islands.
- 06/07/82 -- President Reagan flew to Britain for talks with Prime Minister Thatcher on the Falklands issue.
- 06/06/82 -- British troops on the Falklands were reinforced by elements of the 5th infantry brigade. This was the first major troop reinforcement effort by the British.
- 06/05/82 -- Argentina protested the alleged British use of Argentine POWs to find and defuse Argentine explosives in the Goose Green and Port Darwin areas.
- The U.N. Security Council failed to ratify a resolution calling for a cease-fire in the South Atlantic due to American and British vetoes.
- 06/04/82 -- A high Argentine military source denied that the Soviet Union was installing a radar system along the Argentine coast.
- British forces were given the "go-ahead" for the final offensive push against Port Stanley.
- 06/03/82 -- Crew members of a U.S. C-130 aircraft, which had landed in Buenos Aires, were arrested after taking photographs of the airport and several aircraft. They were released several hours later after turning over the film to Argentine officials.
- According to Argentine and Brazilian sources, two Brazilian Mirages intercepted a British Vulcan bomber outside Brazilian air space and forced it to land at an airfield in Rio de Janeiro.
- Argentine President Leopoldo Galtieri announced that Argentina will accept eventual aid from the Soviet Union or from any other country that will offer it.
- 06/02/82 -- According to British journalist Jon Snow, British commandos had blown up five Super Etendard jets in an attack on Argentine mainland military bases last week. The report was denied by the British Defense Ministry.
- Costa/Mendez left Argentina for Havana to attend a meeting of the non-aligned countries.
- 05/31/82 -- British forces were reported to be closing on Port Stanley from the west and southwest.
- 05/30/82 -- British troops took nearly 1400 prisoners as they captured Argentine positions at Darwin, Goose Green, Douglas and Teal Inlet.
- The British government denied Argentine reports that the British aircraft carrier, Invincible, was critically damaged by an Exocet missile.

- 05/26/82 -- The UN Security Council unanimously approved a resolution requesting UN Secretary General Javier Perez de Cuellar to try to obtain an immediate ceasefire in the Falklands and to report within seven days the results of his efforts.
- According to Argentine shipping and agricultural officials, the Soviet Union has postponed approximately one-half of its grain purchases.
- 05/25/82 -- According to a senior State Department official, Israeli military equipment on an Equadoran cargo plane destined for Argentina was detained by Federal authorities in New York. An Israeli official denied that the cargo was destined for Argentina.
- Peru announced that it will agree to all requests for aid submitted by Argentina.
- In fierce Argentine attacks against the British task force, several vessels were damaged. It was later learned that the Ardent, the Antelope, and Coventry had been sunk and that the Atlantic Conveyor had been abandoned after being hit by Exocet missiles.
- Prime Minister Thatcher rejected a cease-fire appeal by Pope John Paul II, stating that Argentina must first withdraw its troops from the Falklands.
- 05/24/82 -- The Brazilian government presented a peace plan to the UN Security Council that included provisions for an immediate cease-fire and a pull back of forces by Britain and Argentina.
- The European Community voted to extend its economic sanctions against Argentina for an indefinite period. Italy and Ireland abstained from the vote.
- 05/21/82 -- British troops began landing in parts of the West and East Falklands, supported by air and sea attacks on Argentine positions.
- British forces established a bridgehead around the area of San Carlos Bay.
- 05/20/82 -- British Task Force Commander Sandy Woodward was given the go-ahead to launch a series of landings and hit-and-run operations on the Falklands. The task force was placed under active service conditions on May 18.
- 05/18/82 -- Argentina asserted that the presence of British nuclear submarines in the South Atlantic was a violation of the nuclear non-proliferation treaty.
- 05/17/82 -- The European Community, after prolonged debate, extended its ban against Argentine exports for one week (through

May 24).

- 05/14/82 -- British ships attacked an Argentine airstrip on Pebble Island (north of West Falkland) while commandos, landed by helicopter, carried out a night attack that reportedly destroyed ammunition stores and 11 aircraft (mostly Pucara light-attack planes).
- All Argentines taken prisoner by the British on South Georgia (Apr. 25-26) were repatriated to Buenos Aires, except for their commanding officer, Capt. Alfredo Astiz, being held for questioning by French and Swedish authorities about his alleged part in the disappearance of two French nuns and the killing of a Swedish national in 1977.
- Three of several Argentine A-4s attacking the RNTF 30 miles north of the Falklands were destroyed by ship-to-air missiles from one of two British frigates equipped with the new Sea Wolf missile, a close ship-defense system (comparable to the U.S. Navy's Phalanx gun). Two ships sustained moderate but reparable damage.
- 05/10/82 -- Britain set up an area of "controlled air space" over Ascension Island, which will cover a 100-mile radius around the island's Wideawake airfield.
- British warships again bombarded Argentine military targets around Port Stanley.
- 05/09/82 -- Argentina admitted that British aircraft attacked and captured an Argentine vessel (Narwal), reportedly engaged in surveillance activity.
- British warships bombarded Argentine military installations surrounding Port Stanley and Darwin, after several days of quiet in the South Atlantic.
- News correspondents reported that an Argentine helicopter (Puma) was shot down near Port Stanley.
- 05/07/82 -- Peru and the United States abandoned their joint peace effort after failing to win Argentine support.
- Britain extended its "total exclusion zone" to within 12 miles of the Argentine coast.
- Britain announced that RAF Nimrods have been fitted with air-to-air refueling probes and will be deployed in the South Atlantic.
- The European Community defended its right to impose trade sanctions against Argentine. The EC was answering an Argentine complaint that the embargo violated GATT's free trade laws.
- 05/06/82 -- UN Secretary General Javier Perez de Cuellar said that Britain and Argentina had given a "positive reaction"

to his proposals for resolving the Falklands dispute within the United Nations.

- British Defense Secretary John Nott ruled out the possibility of a cease-fire unless Argentina first withdrew its forces from the Falklands.
 - The British Defense Ministry confirmed the loss of two Sea Harriers in bad weather.
 - NATO defense ministers backed Britain's actions in the South Atlantic and condemned Argentina for failing to abide by Security Council Resolution 502.
- 05/05/82 -- Britain reported 87 casualties, including 20 killed, in the Argentine attack on the destroyer Sheffield.
- The Argentine government placed a 45-day restriction on all non-essential imports and a devaluation of the peso by 16.8%.
 - The United States and Peru presented a new set of peace proposals to Great Britain and Argentina.
- C5/04/82 -- A British destroyer (HMS Sheffield) was severely damaged by Argentine jets. A British Harrier jet was also shot down in raids over Darwin.
- The Republic of Ireland called for an immediate meeting of the UN Security Council in an effort to prevent further hostilities in the South Atlantic. Ireland also announced that it would seek to end the European Community's ban on trade with Argentina.
 - British aircraft carried out a second attack on the Port Stanley and Goose Green airfields in an effort to render them inoperable for small planes of the Argentine occupation force in the Falklands.

(The loss of one Sea Harrier aircraft and its pilot during this action was later announced by the British government.)
 - British destroyer HMS Sheffield was sunk by anti-ship missiles (French-made Exocet) fired from Argentine aircraft in 200-mile zone, resulting in first British combat fatalities.
- 05/03/82 -- Argentina rejected Haig's seven-point peace proposal and criticized U.S. support of Britain.
- 05/02/82 -- Argentine cruiser General Belgrano torpedoed and sunk by a British submarine off Tierra del Fuego and beyond the 200-mile exclusion zone (but regarded by the British as posing a threat to the RNTF).
- 05/01/82 -- British aircraft attacked airfields at Port Stanley and Goose Green in the East Falklands, damaging runways

and destroying fuel stores and facilities, in an effort to deny Argentine forces the use of these sites for airlift and combat operations. Later, the airfield at Port Stanley was shelled by British ships, and Argentine and British aircraft were engaged in a brief but intense air battle, with two Argentine planes shot down and Argentine claims of British aircraft losses that other sources have denied.

- 04/30/82 -- Haig announced U.S. support for Britain in the Falklands dispute and the imposition of economic sanctions on Argentina, after the Argentine government rejected the latest compromises proposed by U.S. mediators. This support would include provision of material assistance but not the direct participation of U.S. military personnel in the conflict.
- Soviet authorities officially denied that they have provided any military information to Argentina.
- Britain announced the imposition of an air quarantine, as well as a maritime exclusion zone, around the Falkland Islands.
- 04/29/82 -- Argentina announced that Haig's latest peace proposal would not satisfy fundamental Argentine objectives of sovereignty over the disputed territory.
- Argentina denounced the British blockade as a new act of aggression and stated that all British craft found within a 200-mile zone around the Falklands and along the Argentine coast would be considered hostile.
- The Soviet government reportedly warned Britain that it would not tolerate any British interference with Soviet maritime trade in the South Atlantic.
- 04/27/82 -- The British Ministry of Defense issued a categorical denial that a small British force had landed on the Falkland Islands proper.
- 04/26/82 -- Prime Minister Thatcher warned Argentina that time for negotiating a peaceful settlement was short, stating that Britain's three principles are: complete withdrawal of Argentine forces from the islands; restoration of at least a temporary British administration; and complete self-determination for the islanders.
- Whitehall sources disclosed that British forces are likely to be in action against Argentine occupation troops on the Falklands "within the next 48 hours."
- Foreign ministers of the Organization of American States (OAS) opened discussions and issued a statement calling for both sides to refrain from the use of force.

- British military sources confirmed that Britain has recaptured the South Georgia Islands.
- 04/25/82 -- British troops landed on South Georgia where they met little resistance by Argentine troops. Argentina announced that the fighting was "fierce" and that Argentine forces continue to resist.
- Argentina reported a British attack along the entire line of Argentine positions on South Georgia. Foreign Minister Costa Mendez stated that Great Britain and Argentina are technically at war.
- British helicopters attacked and crippled an Argentine submarine off the coast of Grytviken on South Georgia.
- 04/24/82 -- Great Britain announced that any type of Argentine craft sighted within the British maritime exclusionary zone will be subject to attack.
- Foreign Secretary Francis Pym left Washington and returned to London. Pym stated that he believed a clash was inevitable, and that the most recent Argentine peace proposals were unacceptable.
- 04/22/82 -- A second Argentine aircraft was intercepted by British Harrier jets as it approached the British fleet. No shots were fired.
- 04/21/82 -- Military sources confirmed that an Argentine transport plane was intercepted by a British Harrier jet when it passed close to the British Task Force.
- Argentine President Leopoldo Galtieri arrived in the Falkland Islands.
- 04/20/82 -- Argentina officially requested that the OAS call a special meeting of the foreign ministers.
- 04/19/82 -- Great Britain requisitioned more ships and an additional 900 men for the Falkland Task Force.
- Secretary of State Haig returned to Washington from Buenos Aires reportedly with Argentine approval for an agreement that would involve British participation in a temporary administration of the Falklands.
- Argentina announced that it will seek to invoke an inter-American defense treaty, known as the Rio Pact, over the objections of the United States.
- 04/16/82 -- The British government requisitioned an additional 25 ships for its Atlantic task force.
- 04/15/82 -- In a telephone call to Argentine President Leopoldo Galtieri, President Reagan urged Argentina to show flexibility and restraint in the Falkland's crisis.
- Argentina's only aircraft carrier and most of the

rest of its fleet reportedly put out to sea from port 500 miles north of the Falklands.

- 04/14/82 -- President Reagan announced that the Soviet Union is providing Argentina with sensitive military intelligence to monitor British fleet movements.
- Two Argentine patrol boats reportedly evaded the 200-mile British blockade and arrived in Port Stanley without incident.
- 04/13/82 -- The Organization of American States passed a cautious resolution expressing its "concern" over the Falkland crisis and offered its "friendly cooperation" to peace efforts already underway.
- According to press reports, U.S. Administration sources said that the United States is providing Britain with fuel for its ships and aircraft at Ascension, intelligence on the disposition of Argentine forces weather information, and a satellite communications channel.
- Great Britain rejected a Peruvian call for a 72-hour truce in the crisis.
- 04/10/82 -- The European Community agreed to impose a ban on all Argentine imports for one month.
- 04/08/82 -- Argentina responded to Britain's naval war zone by creating its own military zone around the islands and declaring it will act in self-defense there "at any time."
- 04/07/82 -- Britain declared that any Argentine vessel discovered within 200 nmi of the Falklands after April 11 would risk being attacked.
- The United States assumed the major role of negotiating the Falkland crisis. Secretary of State Alexander Haig was named the principal negotiator.
- 04/06/82 -- The 10 permanent members of the European Economic Community condemned the Argentine invasion of the Falklands.
- 04/05/82 -- Argentina's Foreign Minister Nicano Costa Mendez addressed the Organization of American States and appealed for regional support for the Argentine position.
- A 36-ship task force, the largest British fleet assembled since World War II, set off for the 2-week trip to the Falklands.
- British Foreign Secretary Lord Carrington, admitting he had incorrectly assessed Argentine military intentions, resigned. He was replaced by Francis Pym.

- 04/03/82 -- Argentina announced that Britain, having lost the Malvinas Archipelago, must also forfeit its claims in Antarctica.
- 04/02/82 -- The United Nation's Security Council demanded the withdrawal of Argentine forces from the Falklands. The vote on the British resolution was 10-1 with China, the Soviet Union, Poland, and Spain abstaining. Panama cast the lone vote against the resolution.
- An Argentine invasion force of 2,000 marines seized the Falklands. Three Argentines were reportedly killed.
- 03/19/82 -- Thirty-nine Argentine workers landed on St. Peter Island of the South Georgia Islands to dismantle an old whaling station. After raising an Argentine flag, the workers were evicted by British authorities.
- 02/00/81 -- The Shell Oil Company announced oil discovered off the Magellan Straits. Shortly after, Exxon's subsidiary, Esso Argentina, reported two additional discoveries.
- 00/00/76 -- The findings of the Lord Shackleton Report suggested that Falkland offshore yields of krill (the principal food of whales and seals) represented the "world's largest untapped source of protein."
- 02/00/76 -- A British scientific research ship, the Shackleton, was intercepted 80 miles south of the Falklands (450 miles from the Argentine mainland) by the Argentine destroyer, the Almirante Storni. The Storni fired warning shots across the bow of the Shackleton and forced the ship's return to Port Stanley. Britain subsequently reinforced its defense forces on the islands from 20 to 37 Royal Marines.
- 00/00/75 -- A geological survey conducted by D.H. Griffeths of Birmingham University (U.K.) led to speculation that the Falklands' offshore gas and oil potential may be nine times greater than North sea reserves.
- 09/00/74 -- The Argentine state-owned oil company, Yacimientos y Petroliferos Fiscales (YPF), received monopoly rights to supply the Falklands with its petroleum requirements.
- 08/00/71 -- The Anglo-Argentine Communications Agreement implicitly recognized Argentina's role in meeting the islands' mail service and transport needs.
- 09/00/66 -- Twenty Argentines symbolically "invaded" the islands in a publicity stunt and became national heroes overnight.
- 12/16/65 -- The United Nations General Assembly adopted Resolution 2065 to encourage Argentina and Britain to initiate negotiations.

- 1908 -- The islands of South Georgia, South Sandwich, South Orkney, South Shetland, and the Graham Land Peninsula formally became Dependencies of the Falkland Islands.
- 1884 -- Argentina reaffirmed its sovereignty over the Falklands based on their propinquity to the Argentine mainland.
- 1832 -- Britain reasserted its sovereignty over the Falklands by sending out the ship Clío under the command of Captain Onslow. Twenty-five Argentine soldiers were expelled and the British flag was raised on Jan. 2, 1833, marking the establishment of settlement.
- 1831 -- Following the seizure of three U.S. sealing vessels and their crew, the American warship Lexington, commanded by Silas Duncan, destroyed the Argentine fort at Soledad.
- 1829 -- Under the authority of the Republic of Buenos Aires, Louis Vernet revived the settlement of Soledad and the government of Argentina claimed sovereignty over the islands.
- 1816 -- The Republic of Buenos Aires (later the Argentine Republic) declared its formal independence from Spain.
- 1811 -- Spanish forces withdrew from the Falklands.
- 1806 -- British forces attacked and temporarily occupied Buenos Aires.
- 1774 -- British forces withdrew from the Falklands.
- 1770 -- A Spanish force of 1,400 men expelled the British from Port Egmont. The action brought the two countries to the brink of war until negotiations the following year led to the restoration of Port Egmont to the British.
- 1767 -- Spain purchased France's claim to the Falklands for 24,000 pounds and sent a garrison there under authority of the Imperial Governor at Buenos Aires. The settlement at Port Louis was renamed Soledad.
- 1765 -- Britain's Commodore John Byron took possession of the islands in the name of George III and established a settlement at Port Egmont on Saunders Islands.
- 1764 -- Antoine Louis de Bougainville, sailing from St. Malo, France, established the islands' first settlement at Port Louis on East Falkland. The islands were designated Les Malouines (or las Islas Malvinas in Spanish America) and were taken in the name of King Louis XV.
- 1690 -- The Falklands were so named by Captain John Strong in honor of Viscount Falkland, Treasurer of the Royal Navy.
- 1592 -- According to British sources, the Falkland Islands were

discovered by John Davis, an English explorer.

1520

-- According to Argentine sources, the Falkland Islands were discovered by Spanish explorer Ferdinand Magellan.

HISTORICAL CLAIMS MADE TO THE MALVINAS/FALKLAND ISLANDS

ARGENTINA

GREAT BRITAIN

By Discovery

Maps and charts from as early as the 1520s show that the islands were discovered by Spanish navigators.

John Davis, and English explorer, discovered the islands in 1592. Capt. John Strong named the islands in honor of Viscount Falkland in 1690.

By Award

Rights to the islands granted to Spain by the Papal Bulls Inter Coetera and Dudum si Quidem ~~and by the Treaty~~ and by the Treaty of Tordesillas.

(Other European countries did not recognize the papal bulls and treaty whose purpose was to avoid war between Spain and Portugal.)

By Recognition of Spanish Claims

Peace Treaty of 1604 between Spain and England returned situation to pre-war status, nullifying any rights to islands based on discovery

(That rights of Spain to the islands passed to Argentina is a matter of assertion by Argentines rather than direct transfer by Spain. Great Britain never recognized any right of Argentina to the islands.)

Treaty of Madrid of 1670 prohibited British trade and sailing with or in the Spanish seas and the Spanish Indies.

Provisions of the Treaty of Madrid repeated in the 1713 Treaty of Utrecht.

Great Britain recognized Spanish claims in 1771 when the countries agreed that restoration to Great Britain of Port and Fort Egmont did not affect prior sovereign rights over the islands.

Peace Treaty of Versailles in 1783 repeated provisions of 1670 and 1713 treaties mentioned above.

The Saint Lawrence Convention of 1790 established that British and Spanish subjects would not establish new colonies in the South Atlantic or Pacific nor settle any place already occupied by Spain.

Great Britain interpreted the Nootka Sound Convention of 1826 between it and the U.S. to reflect the above interpretation of the 1790 convention.

Great Britain did not state any reservation to Argentine claims to the islands in the 1825 Treaty of friendship, trade, and navigation, in which Britain recognized Argentine sovereignty.

By Acts of Domination

Spain named numerous and successive governors of the islands between 1774 and 1811 who exercised authority over the islands, without British protests.

Spain in a 1766 Royal Bill declared the islands to be dependencies of the Captaincy General of Buenos Aires.

In 1820, David Jewett took formal possession of the islands in the name of Argentina as heir of Spain. This was published abroad, but not protested.

On June 10, 1829, the Government of Buenos Aires created the political and military commandancy of the Malvinas Islands.

Commodore John Byron took possession of Saunders Island in West Falkland area and of all the neighboring islands in the name of George III, naming his anchorage Port Egmont, in 1765.

(Britain protested Argentine acts to settle the islands, stating they acted without taking into account British rights to the islands. Britain protested the naming of governors by the government of Buenos Aires in 1829 and 1832.)

By Settlement

Spain purchased the legal rights to the islands' first settlement, Port Louis, from the French in 1767. (Spain had protested the French settlement's founding on East Falkland Island's Berkeley Sound in 1764.)

The British voluntarily left Port Egmont in 1774 and the plaque they left behind claims only "Falkland's Island" on which it was located, not the entire archipelago.

In 1832, a year after an Argentine settlement had been destroyed by U.S. sailors, Argentina returned to settle Puerto Soledad, designating a new civil and military governor.

In 1766, Commodore Byron brought 100 settlers to Port Egmont. This was occupied by 1,400 Spanish soldiers in 1770. After long negotiations, Port Egmont was restored to Britain in 1771. When the British abandoned it in 1774, they left behind a plaque claiming "Falklands Islands with this Fort, the Stonehouse, Wharfs and Harbours, Bays and Creeks" for George III. The British state that the Spanish withdrew from Puerto Soledad while Port Egmont was deserted.

In 1833, Great Britain forcibly occupied Puerto Soledad, an area it had never previously settled. Argentina promptly and repeatedly protested. Argentina holds that this arbitrary and unilateral act cannot generate nor create any rights for Great Britain.

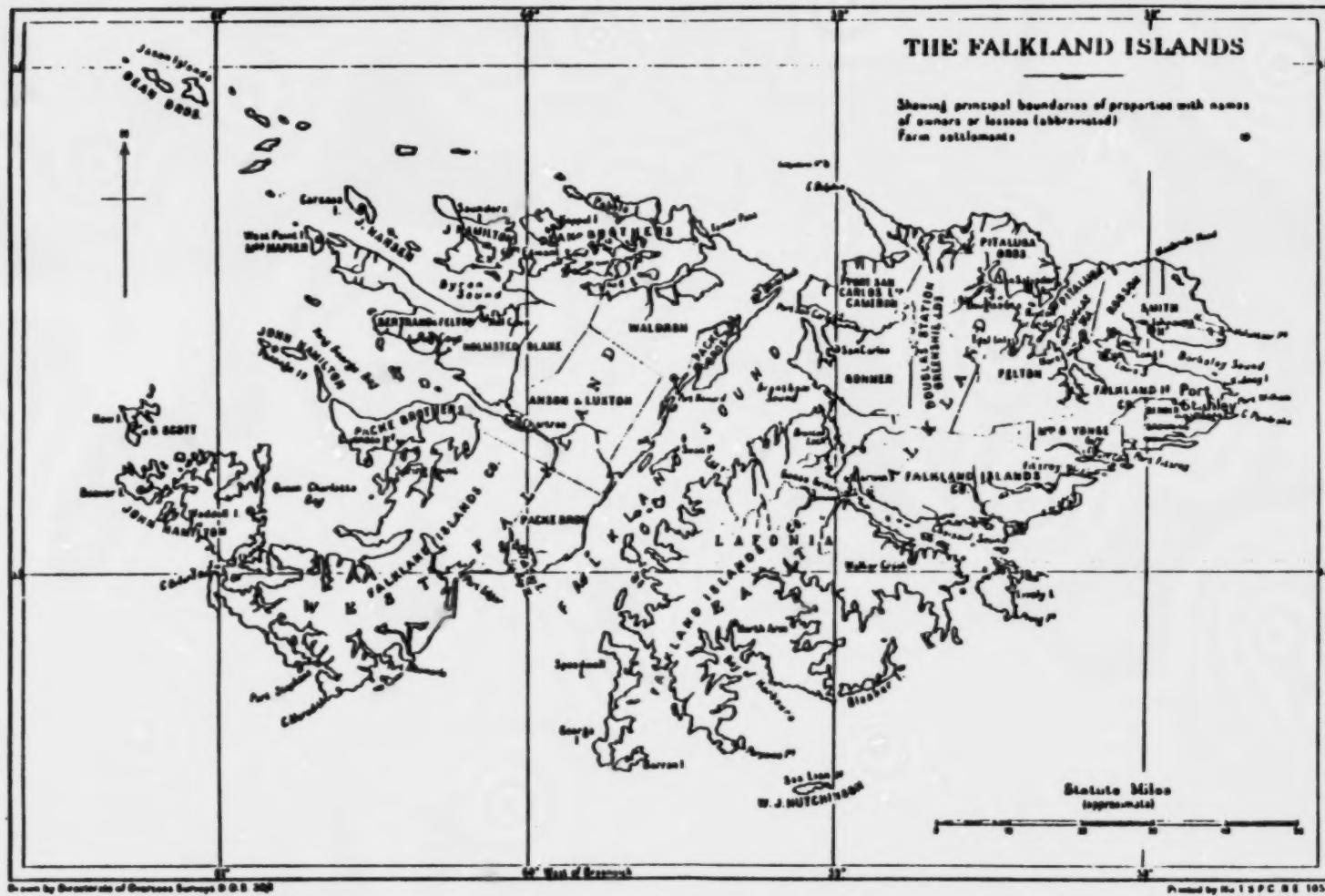
British Government reasserted its claim in 1832, taking down and returning the Argentine flag at Puerto Soledad to an Argentine commander who voluntarily left the settlement with his soldiers for his ship. (Settlement not taken by force.)

(Argentine withdrawal after U.S. destruction of Puerto Soledad made the island res nullius.)

Argentina's position taken from a statement by the representative of Argentina, Dr. Jose Maria Ruda, before the Subcommittee III of the Special Committee on the situation with regard to the implementation of the declaration on the granting of independence to colonial countries and peoples of the United Nations, September 9, 1964.

British claims taken from the Report for the years 1958 and 1959 on the Falkland Islands and Dependencies, prepared by the Great Britain Colonial Office, published in 1960 in London. Material in parentheses about British claims taken from a journal article written by J.C.J. Metford, entitled "Falklands or Malvinas? The Background to the Dispute," which appeared in the July 1968 edition of International Affairs, published for the Royal Institute of International Affairs by Oxford University Press.





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Soviet Options on NATO's Northern Flank

by Maj. Gen. Richard C. Bowman, USAF-Ret.

After winning the battle of Poltava in 1709, Peter the Great called captured Swedish generals and colonels into his presence and offered a toast to his teachers. When asked "Who are your teachers?" Peter replied "You are, gentlemen." Since 1700, when Peter attacked Sweden, the Swedes under Charles XII had won every major battle until Poltava, deep in the Russian Ukraine. At that final battle, 19,000 Swedes, long without supplies and carrying their wounded king on a litter, attacked 42,000 Russians.

In 1940, the USSR invaded Finland, another Scandinavian country believed to be weak, only to be stopped again and again until sheer weight of numbers prevailed. History has taught the Russians that Scandinavians cannot be easily subdued.

In the current era, Russia must covet Scandinavia more eagerly than ever in its history. The currently disputed fishing boundaries and possible petroleum reserves of the region are of interest, but the region is most important as the Soviet gateway to the Atlantic and the key to the maritime link between the US and Europe.

The Importance of the Northern Flank in the Strategic Balance

The importance of the northern flank to the Soviets is demonstrated by the fact that they have built the world's largest complex of naval bases in the vicinity of Murmansk. This small, ice-free area adjacent to the Soviet-Norwegian border provides the USSR its only naval and air bases with sure access to the Atlantic. As a result, approximately 130 attack submarines and 69 major surface fleet combatants (cruisers, destroyers, and frigates) and many naval and tactical air bases are located in that area. The Kola Peninsula is also of major significance in the strategic nuclear war balance, serving as the base for most Soviet ballistic missile submarines, long-range radars for detection of Western strategic retaliatory forces, and many interceptor aircraft.

Unfortunately for the Soviets, their Kola bases are both too concentrated and too far from primary wartime operating areas. Soviet occupation of Norwegian bases would make possible a defense in depth of strategic installations

and greatly improved air cover for ballistic missile submarines crossing the Norwegian Sea. Capture of northern Norway would also make available many deep-water fjords, providing dispersed naval basing some 750 to 1,000 nm closer to the Atlantic. Soviet submarines, surface warships, and naval aircraft operating from northern Norway could greatly influence any sea war for the Atlantic.

It is easy to dismiss the "battle of the Atlantic" as a World War II phenomenon and an anachronism in the nuclear age. But that view has been replaced by a much more sophisticated understanding of deterrence. Now that there is equivalency in strategic nuclear capability, conventional threats may no longer be deterred solely by fear of nuclear retaliation. Concurrently, there must be an adequate conventional defense to achieve an early peace if possible, or, in the worst case, to ensure that the use of nuclear weapons in *extremis* would be a credible act.

But even in a short war, the on-going "battle of the Atlantic" would be a critical determinant in subsequent peace negotiations. Although Alliance ground and air forces gain the upper hand, an early peace might be elusive if it appeared that Soviet submarines and naval aircraft could succeed in closing the Atlantic to the large volume of supplies and replacement equipment that would have to come by sea from the United States to sustain Alliance defense much beyond 30 days. On the other hand, the maintenance of Allied supremacy in the Atlantic might permit a satisfactory peace even in the event of some Soviet advances on land.

Given the critical importance of the Atlantic, the defense of Norway should be accorded a high Alliance priority. Defense of the Atlantic begins in the Norwegian Sea and ultimately in northern Norway, the closest point to the naval and air bases from which the threat must originate. The Alliance northern defense area forms roughly an isosceles triangle with its 500-mile long base resting on Iceland and Scotland, one side reaching 900 nm across the Norwegian Sea from Iceland to northern Norway and the other from Scotland up the Norwegian coast along the other side of the Norwegian Sea to the Troms area. From this forward point it is 350 miles by air

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and 800 km by road to the Soviet border.

The defense of this critical triangle must depend on land, sea, and air forces. Land forces must protect northern Norway from overland attack both to prevent Soviet occupation, and to secure its vital air and sea bases. Aircraft based in northern Norway must support land forces and intercept Soviet land, air, and naval forces attacking northern Norway from the Kola Peninsula, while aircraft based in Iceland, Scotland, and southern Norway can help those in northern Norway deal with Soviet air, surface, and subsurface forces operating in the Norwegian Sea. Finally, Alliance naval forces must establish subsurface defenses in the Norwegian Sea, use surface-to-surface and air-to-surface missiles against Soviet surface ships, counter any amphibious attacks from the Kola, and eventually bring in reinforcements as necessary.

On the Soviet side, the principal bases take the shape of a land triangle, with Murmansk as its forward point. One side extends southward some 1,200 km to a base area near Leningrad; from there another extends 700 km southeast to the Moscow Military District; and the third runs 1,800 km back to Murmansk. Mobilization and transit times for movement of divisions to the Norwegian border could be as much as a week from Leningrad and two weeks from Moscow.

Operating from the Murmansk area, Soviet naval forces can put to sea in a few hours. But to reach their station in the Atlantic they would have to proceed through the Barents Sea around the

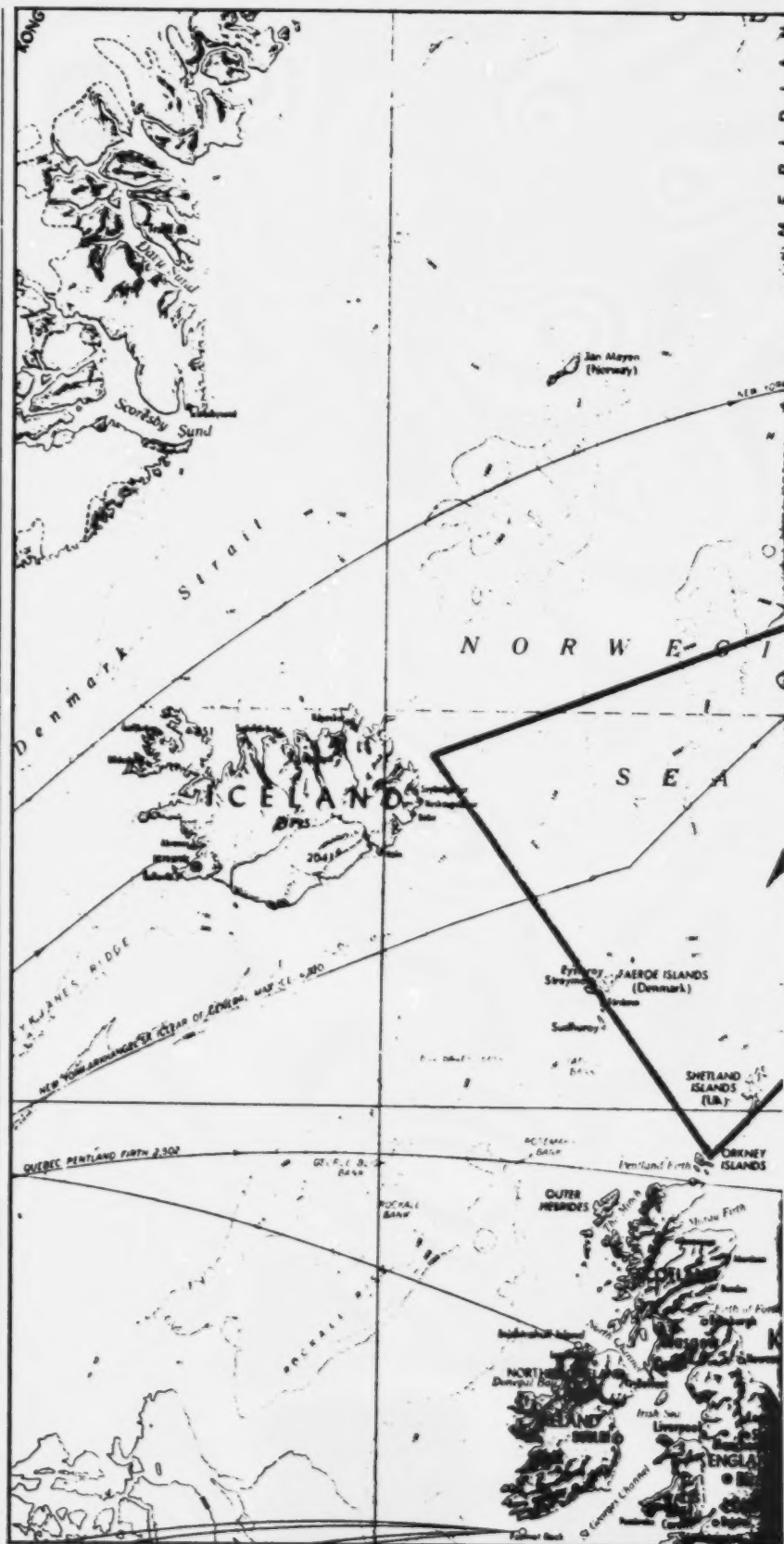
northern end of Norway, across the Norwegian Sea, and through either the Iceland-UK or Iceland-Greenland gap. As long as NATO held northern Norway, they would be threatened throughout this distance, first by Allied attack submarines and antisubmarine patrol aircraft, then by minefields, and finally by Allied surface ships and carrier aircraft.

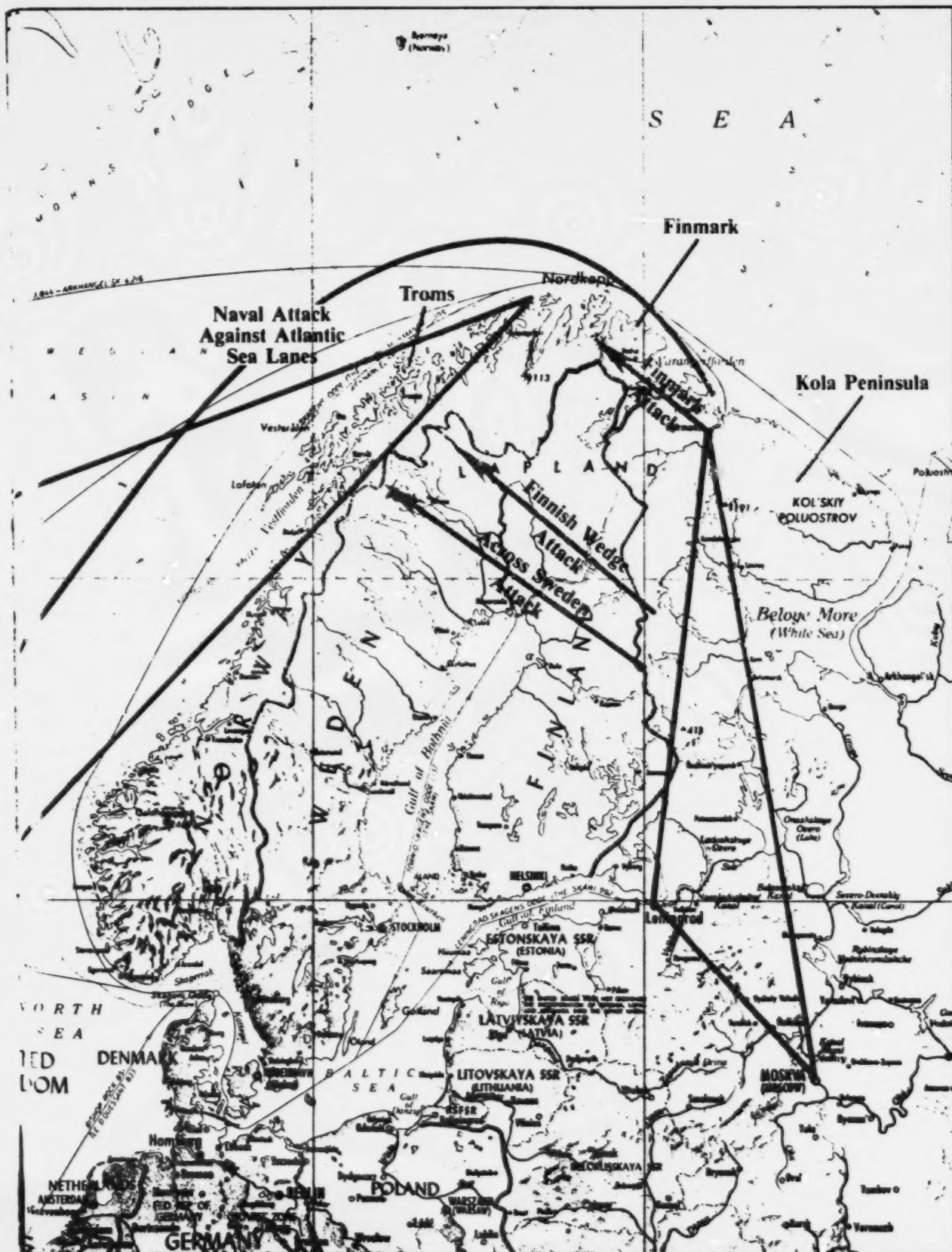
Soviet surface fleet units and Soviet long-range naval aircraft from the Kola would be tracked continuously by Norwegian ground-based radars, the airborne radars of NATO AWACS aircraft, US AWACS from Iceland, Nimrod aircraft from the UK, and carrier-based E-2Cs. Allied air defense aircraft from northern Norway, Iceland, the UK, and carriers in the northeastern Atlantic would intercept Soviet attack aircraft including naval Backfire bombers; Allied antisubmarine patrol aircraft and attack submarines would eliminate Soviet submarines, and Allied attack aircraft would use stand-off missiles against Soviet surface ships. Then with the Soviet submarine and naval bomber threat reduced, NATO naval commanders could insert aircraft carrier groups into the Norwegian Sea.

The Soviets would have to weigh the latter threat very carefully in their naval planning. Soviet surface ships could not be parcelled out for separate operations in the Norwegian Sea without risking both heavy losses to submarines and a weakened posture for defense against Allied carrier groups.

In effect, units of the Soviet surface fleet would have little chance of safely exiting the Norwegian Sea unless they could be supported from captured Norwegian air bases. The submarine war and the fight between Soviet long-range naval aircraft and Allied interceptors would go on, but forward Allied bases in northern Norway would make the entire Norwegian Sea an Allied defense zone.

Of course, the peculiar situation of two military triangles in contact mainly at their northernmost points arises because of the interposition of Finland, the Baltic Sea, and Sweden between the Soviet Union and Norway. Even though Finland's territory might be violated because of its enforced military weakness, Finnish trained reserves could be counted on to wage vigorous partisan warfare in the Soviet rear. Moreover, violating Finnish territory without also moving through Sweden would not offer an invasion route south of Troms. Only an invasion of Sweden would provide multiple land routes to central and southern Norway, and Sweden is a much more formidable foe than Finland. Although Sweden has only some eight million people, it maintains a tactical fighter force nearly as large as those of the United Kingdom, Germany, or France and can quickly mobilize nearly 30 brigades plus some 100 separate battalions, another





100 battalions and 400 separate companies of local defense forces and 100,000 Home Guards—a total of some 700,000 troops. But, for the future there is some worry as to whether Sweden will maintain its current military strength in the face of economic pressures, and a weak Sweden would invite an attack through Sweden against the long Swedish-Norwegian border (especially with respect to the actual air force capability).

Faced with the geographic, military, and political realities of the northern flank, the Soviets have several military options for action against Norway: (1) harassment, (2) local attack against northern Norway without any action against the Alliance in other areas, (3) invasion of northern Norway in conjunction with attacks against the Alliance everywhere, (4) invasion of Sweden and then Norway, (5) capture of southern Norway to eliminate support for the north, threaten the North Sea, and outflank the center region.

Soviet Harassment of Sweden

The Soviet option of harassment can be exercised at very little cost, but is likely to be counterproductive. It is possible that Soviet ships tested this option on some occasions in 1978. There is uncertainty as to whether these were deliberate probes, but harassment of this kind could be organized to signal to the Norwegians that Big Brother was nearby and capable of intruding on Norwegian soil, and that Norway should therefore neither waste its money on defense forces nor resist Soviet political pressures.

Clearly one major obstacle to the success of that type of psychological warfare is the character of the Norwegian people. Even the ambiguous boat episodes of 1978 provoked a national outcry in Norway, indicating that harassment will tend to strengthen Norwegian national resolve rather than weaken it. Similarly, Soviet submarine intrusions into Swedish waters have increased Swedish defense efforts.

Soviet Land Attack Against Norway

Moving to their second major military option, at the next highest level of escalation, the Soviets might consider a purely local attack against northern Norway without any action against the Alliance in other areas. This course of action might be tempting in the event of widespread political and military weakness throughout the Alliance—possibly a danger in the event of a major economic failure. If Western governments were unable to maintain their defense budgets for several years and faced political unrest, the Soviets might conclude that Allied reinforcement of northern Norway would be slow and inadequate, and that

by seizing that area they could prove the ineffectiveness of NATO and trigger a general move toward neutralism in Europe. This tactic would aim at the elimination of the Alliance as an effective barrier without the more dangerous step of a large-scale attack in the central region. Even if war should spread, quick Soviet occupation of northern Norway could provide a decisive advantage in the subsequent battle for sea lanes, restricting NATO reinforcement and resupply of Europe.

Of course, a principal constraint operating against this option is the overall condition of NATO. Individual Allies have gone through periods of economic and political trial, but for over 30 years the Alliance as a whole has remained strong. In fact, taken as a whole, it seems much stronger than the sum of its parts. Strengths and weaknesses are so varied that the 15 Allies should always be able to pull together the right strengths to compensate for weakness.

Regardless of domestic difficulties, in the event of a limited Soviet attack against Norway or any other part of the

Soviet Attack Against Norway as Part of a General Attack Against NATO

Nor would an attack on northern Norway look any more attractive to the Soviets in conjunction with a more general attack against NATO. In that event, it would be harder for the Alliance to reinforce, but it would be equally difficult for the Soviets to move adequate forces to the north to make success possible. And, of course, a general Soviet attack against the Alliance would be deterred by the whole range of NATO military capabilities.

The outcome of any conflict between NATO and the Warsaw Pact will depend to a considerable extent on the dynamic balance in the field of equipment modernization. New Alliance air combat capabilities such as the F-15, F-16, Tornado, and AWACS aircraft and Roland, Rapier, Improved Hawk, and Patriot surface-to-air missiles will more than counter the longer range, higher payload tactical aircraft now ap-



One of five Oslo-class frigates carrying six Penguin antiship missiles. This ship is based on the US Dealey-class destroyer escort, modified for Norwegian requirements. Half the cost of building these ships was borne by the US.

Alliance, mobilization would be immediate, and every day of mobilization would reduce the probability of Soviet success. The Alliance has a major advantage over the Warsaw Pact in population (564 million to 368 million) and Gross Domestic Product (\$3.8- to \$1.4-trillion) which can only mean dominance, given time for preparation. All borders with the East would be closed and the large Soviet merchant fleet would be interned or captured at sea. Norway could repulse the initial attack and would then receive more support and faster support than would be possible if Soviet action had commenced all along the Alliance defense line. In addition, Soviet defense forces would be in vulnerable positions at many places along that line, a condition that the USSR would be unlikely to risk.

appearing in Soviet forces. But defense is not something that can be achieved once and for all. The Soviets will always have new developments underway. In their ground forces, they are currently introducing greatly improved artillery and tanks, and they already outnumber NATO in the central region 2:1 in artillery and 2.7:1 in tanks. Clearly the Alliance must move ahead rapidly with deployment of such new equipment as guided antitank missiles, laser-guided artillery, new tanks and personnel carriers, and aircraft-carried antitank weapons.

If Soviet leadership should decide mistakenly to test Alliance defenses, they would need to strictly economize in the deployment of forces. The Warsaw Pact and NATO both have about five million men under arms. (Some one-third of Soviet forces are tied down on the China

border.) Moreover, Polish, Czech, and East German ground and air units account for over half of the Warsaw Pact forces in the central region. These would be of doubtful value for an attack on the West. Thus the USSR would have to mobilize and concentrate its own forces in the central region in an attempt to win the war there before Alliance forces could be reinforced from the US.

The northern flank would retain its importance for the Soviets, but every division they move to the north to aid in seizing Norwegian bases reduces their chances of breaking the Alliance defense in Germany. Moreover, the Alliance could reinforce the north at a lower rate and be successful, thanks to the defensive advantages of the region's geography.

The most important check against a Soviet attack on northern Norway, either limited or in connection with a general attack on NATO, is the condition of Norway's own defenses. For a country of four million people spread out over a coastal strip as long as the US Atlantic Coast, Norway has done a good job of organizing its manpower. All physically able Norwegian men are required to serve in the armed forces. Those in the army serve for one year of active duty and then serve in army mobilization forces until they are 44 years of age. Home Guard members keep their uniforms and individual weapons at home and participate in alerts and exercises with standing and mobilization forces. Total Norwegian military strength amounts to 35,000 regulars and conscripts, 120,000 mobilization forces, and 80,000 Home Guards. In proportion to population, Norway has over four times as many men in active and reserve forces combined as the United States.

Finmark, the Norwegian province bordering the USSR, is a sparsely populated arctic land of highly inhospitable winters and soggy thaw periods. There is only one north-south road and no railroad in the whole northern 1,000 km of Norway. At the southern end of Finmark, near the principal base areas in the province of Troms, steep mountainsides and deep fjords turn the one road into an easily blocked defile. Occupying Finmark alone would provide the Soviets neither important bases nor access to the Norwegian base area. Instead, they would obtain only 600 km of isolated roadway that would be under constant harassment by Norwegian units operating on their home ground.

Another route to the northern Norway base areas would be across Finland and through the Finnish wedge, which comes to within 50 km of Norway's north-south road. But this route comes through the mountains and offers Norway a series of excellent defensive positions. In that terrain, roads running along the face of cliffs can be mined and made impassable, and wire and laser-

guided weapons have excellent visibility and range advantages against any force attempting to move forward in an attack. Soviet tanks and armored personnel carriers would have to traverse this ground slowly and often in single file, thus being easily picked off one at a time. In this terrain, Norway's Brigade North, an active duty heavy brigade, reinforced by reserves, should be able to turn back with high casualties the two or three Soviet divisions initially available for attack in the north. In short, a land campaign offers the Soviets even greater disadvantages than they faced in their 1939 war with Finland. And this time they would be limited in the number of divisions that could be spared from the central front.

Soviet aircraft might concentrate their attacks on Norwegian air bases, perhaps with some sorties diverted to interdict surface transportation from southern Norway and support divisions attacking in the Finnish wedge. But to reach Nor-

**For a country of
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wegian bases, they would have to fly across some 300 nm of Finmark, during much of which distance they would be without the help of their own ground radars while pinpointed for Allied interceptors by Norwegian radars and NATO AWACS. Currently both Soviet and Norwegian air capabilities are in the process of modernization, but the Norwegian F-16s with the advantage of radar control and onboard, look-down radar will have a great advantage over even the improved Soviet attack aircraft.

For airbase defense, Norway is adding improved Hawk missiles which are essential if those key bases are to be kept open in the face of large-scale air attack. Bases further south would also receive Allied reinforcement aircraft. If Norwegian bases are kept open, the Alliance should be able to win the air war largely through the advantages of radar assistance and improved interceptor capabilities. In fact, the aircraft loss ratio should be as much as two-to-one in favor of the Alliance in north Norway. Replacement of aircraft in this ratio would be a highly attractive proposition drawing down Soviet center region reinforcements at twice the rate of Allied forces.

Of course, the Soviets have the capabilities needed to attempt various end runs against the Norwegian defenses. A Soviet naval infantry regiment is based in the Kola and is well trained for amphibious operations. This regiment, perhaps followed by part of a motorized rifle division, could attempt a landing somewhere in Troms in an effort to seize air and naval bases while drawing off reinforcements that might otherwise assist Brigade North. If a landing were successful, it would expand the combat area, allowing a larger part of the Soviets' initial force superiority to come into play.

But an amphibious operation would involve extremely high risks. A slow-moving amphibious fleet would have to move under the threat of Norwegian and Allied air attack. It would also have to run the gauntlet of Norwegian and Allied attack submarines. Next, it would have to penetrate Norwegian coast artillery and fast-moving, missile-firing patrol boats hidden among the islands. Finally, units that reached shore would be met by one of the several fully-equipped Norwegian reserve brigades located in northern Norway.

Another type of end run could be the drop of an airborne division with the objective of capturing key defiles leading from the Finnish wedge or from an amphibious landing zone. Airborne attacks might also be used to capture or disrupt Norwegian airbases. But the delivery of an entire airborne division would tie up and risk destruction of much of the Soviet transport fleet at a time when it might be needed for air drops in the central region. Also, good air drop areas are limited in the key areas of northern Norway and those would be defended by Norwegian reserve and Home Guard units. Soviet airborne divisions are small and lightly armed and would have difficulty surviving until link-up with amphibious forces or with divisions from the Finnish wedge.

Ultimately, however, the defense of northern Norway depends on the rate of reinforcement on both sides. The terrain advantage lies with the Alliance, and this advantage can be maintained if NATO is successful in reinforcing at even half the rate achieved by the Soviets. Brigade North, with reserve brigades and Home Guard units mobilized in northern Norway and with the assistance of naval and air forces, would have a high probability of success in stopping initial ground, airborne, and amphibious attacks from entering the province of Troms and from moving any further south. Several additional reserve brigades could also be brought north in a few days by air, rail, road, and sea, to reinforce Brigade North to deal with as many as the first five Soviet divisions.

Since the Soviets could bring in more attack aircraft and additional divisions

from the Leningrad or Moscow areas—aircraft and divisions which would then not be available for assignments in the central region—the Alliance would have to provide appropriate reinforcements. Several air defense squadrons would arrive in the first week, and the British and Dutch marines would follow shortly. A strong Allied brigade would be needed in the first 10 days and another a week later. The first might come from the US Marine Corps, which has exercised in the region, while the second could be a Canadian brigade.

In preparation for rapid Allied reinforcement, Norway is organizing engineering and logistics support from military and civilian resources already in the north, and storage for prepositioning of heavy equipment and supplies. When this work is completed, an Allied reinforcement brigade could be in place in a few days using only a small part of Alliance strategic airlift and civilian aircraft. A few days later, if necessary, it could relieve Norwegian units holding the defiles leading out of the Finnish wedge.

Soviet Attack on Norway Through Sweden or Through the Danish Straits

The two remaining Soviet options for attacking the northern flank also involve wider war. The first of these would be a Soviet effort to outflank the central front by moving into both Sweden and Norway. But as long as Swedish defense forces remain at current levels, choosing this option would mean adding at one stroke some 30 Swedish brigades and one of the strongest air forces in Europe to the side of the Alliance.

The Soviets would have to choose between risky amphibious operations across the Baltic, and a land campaign through northern Sweden and across the mountains into Norway. The Swedish air force and navy are prepared to move quickly to the threatened areas to blunt any attack until ground forces can take up defensive positions. Also, Sweden has well-trained local forces which stand ready to destroy roads and bridges, blocking every defile in northern Sweden. Soviet movement through southern Sweden, where most of Sweden's 30 brigades would be mobilized, would be even more difficult in terms of both Swedish defense and Soviet supply lines. To have any hope for success against the combination of Swedish, Norwegian, and Alliance reinforcement forces, the Soviets would have to commit at least 20 to 30 divisions and many tactical aircraft, which would certainly risk an early Alliance victory in the central region.

The final Soviet option on the northern flank would be to move against southern Norway via the Danish Straits. The Soviet capture of southern Norway, of course, would have an even greater

effect on the sea war than the capture of northern Norway. Soviet naval and air forces operating from southern Norway could dispute passage throughout the North Sea and could threaten key bases in the United Kingdom. But southern Norway can be attacked only by first taking northern Norway, Sweden, or the Danish Straits. A major attack through the Danish Straits would be the most difficult and risky of the three approaches. As long as NATO is successful in its central region defense, any attack against the Danish Straits would be vulnerable to flanking attack from the Federal Republic of Germany on the south as well as Norway on the north. Nor would it be possible to move through the Danish Straits by either sea or air in the face of Allied mining and air forces based in Germany, Denmark, Norway, and the United Kingdom. Only the collapse of NATO's central front would make invasion of Denmark and southern Norway practical; if such collapse were

The pattern of Soviet options and geo-military constraints on the northern flank does not offer any real opportunities for Soviet success.

imminent, it would be prevented by the use of nuclear weapons.

The pattern of Soviet options and geo-military constraints on the northern flank does not offer any real opportunities for Soviet success. Harassment is counterproductive; local attack on northern Norway would be defeated with heavy military and political losses for the Soviets; an attack on the northern flank as part of a general attack on NATO could be turned back with minimum levels of reinforcement; an attack through Sweden would produce a relatively stronger force balance in favor of the Alliance; and a direct attack on southern Norway would be impractical as long as Alliance defenses succeeded in the central region.

The enduring Alliance problem for the future is to maintain this favorable system of constraints on Soviet options, in spite of the steady improvements in Soviet forces. Effective coordination of Alliance defense efforts, together with effective use of new technology for improving our ability to detect and destroy intruding enemy forces, should ensure continued successful deterrence on the northern flank. ■ ★ ■

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Countering the Soviet Threat in the Mediterranean

By Admiral Stansfield Turner, U.S. Navy, and Commander George Thibault, U.S. Navy



Sea-based air power occupies center stage in the Mediterranean theater since carriers are essential both to the sea control and projection of power roles. In one of the innumerable dress rehearsals performed almost daily, an F-14 and a "Kresta II" cruiser practice their respective roles of predator and prey.

Every operational commander, from a ship's commanding officer to a fleet commander, must know his capabilities, correctly assess the enemy's capabilities, and think through the tactics he will use if the two forces meet. In the past, overwhelming superiority of force sometimes made up for poor leadership or bad tactics, though seldom without great sacrifice of men and ships. Today, no one nation possesses that much of a power advantage at sea. Good tactics are essential, and that means more than looking for a handy compendium of standard tactics to see a commander through every situation he may face. The days of the off-the-wall tactical solution are past—if, in fact, they ever existed. Certainly, the wisdom of the past must be recorded and learned, but success in future naval engagements will favor the commander who has dissected his problem into its basic elements, who has analyzed the fundamental physical principles that will govern anticipated interactions, and who has established realistic options with criteria for their use, whenever possible.

This article is an attempt to do just that for one particular situation, that which the U.S. Navy now faces in the Mediterranean. It reflects an assessment of the situation in one of the most complex areas in which the Navy operates today. It is not meant to be definitive, but instead is offered as a challenge, particularly to junior officers, to think through this tactical problem and challenge the authors in subsequent interchange. Clearly there are other solutions, and we hope this one will stimulate discussion, generate ideas, and most important, demonstrate that tactical thinking in the Navy rightfully belongs at all levels of rank and command.

In time of war, allied naval forces in the Mediterranean are charged with establishing sea control and projecting power. Each can be divided into two basic tasks:

Sea Control:

- ▶ Establishing an acceptable level of risk for naval forces
- ▶ Keeping the sea lines of communication open for all allied shipping

Projection of Power:

- ▶ Tactical air projection
- ▶ Amphibious assault projection

Of these four tasks, priority must always be given to establishing an acceptable level of operating risk for naval forces. This is analogous to an air commander requiring air superiority before he can proceed with other tactical air missions. The threat in a given sea operating area must be reduced to a degree that some of our naval combat capability can be

spared to conduct the other three naval tasks in support of our land forces. Until that point is reached, all naval assets that can play a role will necessarily be dedicated to establishing a naval operating environment.

Establishing an acceptable level of risk does *not* mean that nothing else will be pursued until the probability of survival is total. There will always be a risk. The urgency of the land commander's requirements will largely determine what level of risk is acceptable in a particular circumstance. Deciding when assets can be spared and other missions attempted will be one of the most difficult judgments to be faced in wartime. If the naval commander's judgment is wrong, his forces may not survive long, and their potential support to the ground campaign will be lost in short order.

Once an acceptable level of sea control risk has been established by the naval commander, the needs of land and air commanders must then figure into establishing the relative importance of the remaining tasks. Naval assets may be available to accomplish all of them simultaneously, but chances are that this will not be the case. Which of the other missions should be undertaken first? The kinds of choices for support of the land campaign include:

- ▶ Carrier air support—Daily sorties of attack aircraft
- ▶ Amphibious reinforcement—The safe movement into the theater of a Marine amphibious force, for example, with 40-50,000 troops, 300 aircraft, and all the follow-on support would require many ships, all of which must be protected by control of the sea lines of communication.
- ▶ Other reinforcement—The safe movement, for example, of one air squadron into the theater as external reinforcement would also necessitate the assured arrival of four or five cargo ships daily to bring the ammunition and spare parts necessary to support it at normal operating levels. Such movement would require control of the sea-lanes.
- ▶ Normal resupply—The safe movement of merchant shipping to meet the minimum daily needs of allied military forces in the Mediterranean theater would require as many as 20 tankers and cargo ships a day. This does not include the support for reinforcement forces or for civilian requirements. Obviously, one can live off stocks for a while, but in the long run, 10-20 ships must berth each day, or ground and air forces will quickly grind to a halt.

Traditionally in the Mediterranean, it has been assumed that Commander Sixth Fleet in his NATO hat as Commander Striking and Support Forces Southern

Europe (ComStrikForSouth) could handle the two projection of power functions (tactical air and amphibious support), and the allied navies could handle the two sea control functions (establish acceptable level of risk and sea lines of communication control).¹ The change in today's threat, however, makes the combined efforts of these forces necessary. On the one hand, ComStrikForSouth will need all the help he can get from the allied naval forces to establish that acceptable level of sea control risk for his carriers early in the game because those carriers will be a primary target of the enemy attack. On the other hand, the change in the nature of the threat at sea is such that eliminating it will depend much more than ever before on the presence of aircraft carriers. Since these will belong to ComStrikForSouth, his support will be essential for any allied operation.

The threat today is primarily from missiles and, to a lesser degree, from torpedoes. This missile threat implies that the enemy can attack us from much greater range. The aircraft is one of our best means of responding to the increased range of the threat. With its speed of reaction, range of operation, and capability to take sensors up in the air, the aircraft can extend the range at which we can detect the enemy and take counteraction. Hence, any concept of operations in the Mediterranean must concentrate on the role of sea-based tactical air power in countering missiles and even torpedoes. There is also a threat from guns and bombs, but it is pointedly ignored here because these weapons must be used at very close range, and we should be able to deny the enemy that opportunity.

Air-to-Surface Missiles: To develop an overall concept of operations, we must look successively at each threat. Let's start with the threat from missiles launched from aircraft. The Soviet air-to-surface missile inventory over the past decade and a half has increased only slightly in quantity. The quality will improve markedly as the "Backfire" aircraft enters naval service more and more.² Today, sizable numbers of aircraft-launched missiles could be directed simultaneously at allied naval forces in the Mediterranean by Soviet land-based naval aircraft. How many raids they could send in one day, or how long they could sustain such raids with attrition and the

normal decline in the availability of aircraft is uncertain.

Older Soviet naval aircraft flying a low profile from existing bases in the Crimea could cover the Mediterranean as far west as Sardinia. If they wanted to come in high, exposing themselves more to land- and sea-based air defense networks, the range could be extended all the way across the Mediterranean. The newer "Backfire" can cover the entire Mediterranean at will. Once in the area of our forces, Soviet



Figure 1

aircraft can theoretically target and launch weapons from as far as 200 miles.

Figure 1 shows the pilot's theoretical choices. He could come in high and launch from far away but would be quite vulnerable to detection. Or, he could come in low and be less detectable but would need to close his target before launch. Neither is a simple problem. First, he must locate his target. Either he must use his radar or electronic sensing devices, if we are emitting electronic information which he can use; or he must work with preprogrammed information from satellites or reconnaissance aircraft. However, even when he has located our task force, he then must identify the specific target which he wants most to destroy. If we are disciplined and minimize the use of electronic devices characteristic of specific types of ships, all targets on his scope will look much the same, making the target choice difficult. So, while our facing large missile raids perhaps twice a day is a formidable threat, his picking out the prize targets can be a formidable problem as well.

The fleet has three counters to the air-launched missile threat: to destroy the aircraft before it launches its missile; to destroy the missile before it

¹For a description of the NATO role of U.S. naval forces in the Mediterranean, see Admiral Means Johnston, Jr., USN, "NATO's Southern Region: Problems and Prospects," *U.S. Naval Institute Proceedings*, January 1975, pp. 47-51.

²See William D. O'Neil, "Backfire: Long Shadow on the Sea-Lanes," *Proceedings*, March 1977, pp. 26-35.

hits its target; or to deceive or decoy either one.

There are four methods of destroying the aircraft:

► The first is to intercept it with carrier aircraft. If the enemy can launch his missiles from approximately 150-200 miles, carrier aircraft must establish a defensive perimeter around the naval force to detect the incoming raid and engage it before it reaches launching range. If the defensive perimeter is established at 100 miles, and the fighters dash out to intercept at 200-250 miles, that perimeter will be about 625 miles in circumference. If each aircraft on that perimeter can cover a circular search area of about 100 miles diameter, half a dozen aircraft on station 24 hours a day would be required to provide 360° defense. That degree of coverage would stretch the capability of any aircraft carrier operating today. Hence, the naval commander must space his aircraft thinly on the defense perimeter, accepting gaps between search areas. Alternatively, he can hope to define more precisely the direction from which the threat is expected and favor that part of the defense perimeter with a higher density. At the moment, the air threat in the Mediterranean can probably come only from the Crimea. It is relatively safe for the naval commander to concentrate his limited air surveillance assets toward that side of his defense perimeter. In the future, should the Soviets gain access to air bases in North Africa or Yugoslavia, shorter flight distances would extend the threat sector to a full 360° around the force, creating greater problems for allied naval commanders.

► The second method of destroying the aircraft is with ship-launched surface-to-air missiles. The coverage envelopes of today's allied shipborne missile systems are limited to about 40 miles (excepting our dwindling assets of Talos). Thus, the enemy aircraft is easily capable of launching from outside our missile envelopes. To compensate for this range disadvantage, a defensive barrier can be established on some perimeter away from the carrier or other high-value unit. Again, the problem of inadequate defensive assets influences tactics. Surface escorts, like air defense fighters, are in short supply. With anti-air missile ships at 100 miles, for instance, a 625-mile defense perimeter is more than can be covered by even 15 surface escorts with missile systems that range only 40 miles. Again, gaps in the barrier must favor a specific threat sector. In either case, this defense is only marginally effective because Soviet aircraft can still launch their missiles from outside or over the top of the missile ship defense perimeter. But, because their missiles have great distances to fly, they can be detected and engaged for a longer time if we erect these barriers with fighter aircraft

and guided-missile-armed ships.

► Our third defensive capability against air-launched missiles is the NATO land-based air defense network composed of interceptor aircraft, a radar system for early warning and interceptor command and control, and Nike/Hawk missile systems. While the Nike missile sites are fixed installations that may be circumnavigated, the enemy must consider their capabilities in any penetration of these combined defenses. Even if a high-density raid against the fleet is not fully engaged by land-based air defense systems, a cross-tell network will enable land-based radars to provide early warning to ships. And, because Soviet aircraft must pass through these defense systems both en route to their targets and on return to their bases as well, there will be two-way attrition which, over time, will greatly diminish the air threat.

► Finally, the fourth way of countering the enemy planes is to strike at Warsaw Pact air bases using land- or sea-based air assets. This is a complex topic that cannot be considered in detail here, but it should not be neglected.

The second means of countering the air-launched missile is to destroy the missile in flight. Here we must rely on shipboard missile systems and particularly the small but very important inner circle of point defense missile and gun systems.

The third means of countering the air-launched missile is to deceive or decoy either the aviator before launch or the missile after launch. We can decoy with various electronic countermeasure devices which take his incoming signal, distort it, and make it look different to him. We can deceive by any number of means. One of the most important is to carefully control our own electronic emissions. As noted earlier, we don't want to identify a particular high-value unit for him with emissions characteristic of that ship alone.

Figure 2 summarizes the air-to-surface missile problem. Against the long-range missile fired from aircraft, a combination of sea-based anti-air warfare systems, carrier fighter aircraft, and the land-based air defense network can be used in a sequence of barriers which the enemy must penetrate.

Surface-to-Surface Missiles: A second major missile threat comes from those launched by surface ships. These missiles have grown from negligible numbers in the early 1960s to a peacetime Soviet inventory in the Mediterranean of about 20-30 types today. We can expect these missiles to be on launchers ready to fire, for most Soviet missile ships are one-shot affairs with no reload capabilities. Soviet ship-launched missiles are fired from two ranges. Approximately two-thirds of the inventory are short-range (30 nau-

tical mile) missiles. The remainder can be launched from over 100 miles but would require intermediate targeting.

The tactical counters to these missiles are the same as against aircraft-launched missiles: destroy the ship before she has a chance to launch, destroy the weapon after launch, or deceive/decoy either the ship or the weapon. Destruction of the weapon after launch and deception/decoying are basically the same for this case as the previous one and hence will not be addressed again.

To destroy the ship, three basic fleet assets can be employed:

► Submarines: Allied submarines are more than a match for Soviet surface ships. The fundamental lim-

both it can be done successfully.

► Tactical air support of maritime operations by land-based attack aircraft of the U.S. Air Force or the air forces of our allies in Italy, Greece, and Turkey. While most of the Mediterranean can be covered by these land-based aircraft, those available in theater are in short supply and in high demand for other missions.

Subsurface-to-Surface Missiles and Torpedoes: The two remaining categories of threat can be combined: missiles and torpedoes launched from submarines.

Our counters to the submarine-launched weapons are tactically the same three as against air- and surface-launched missiles: destroy the submarine, de-

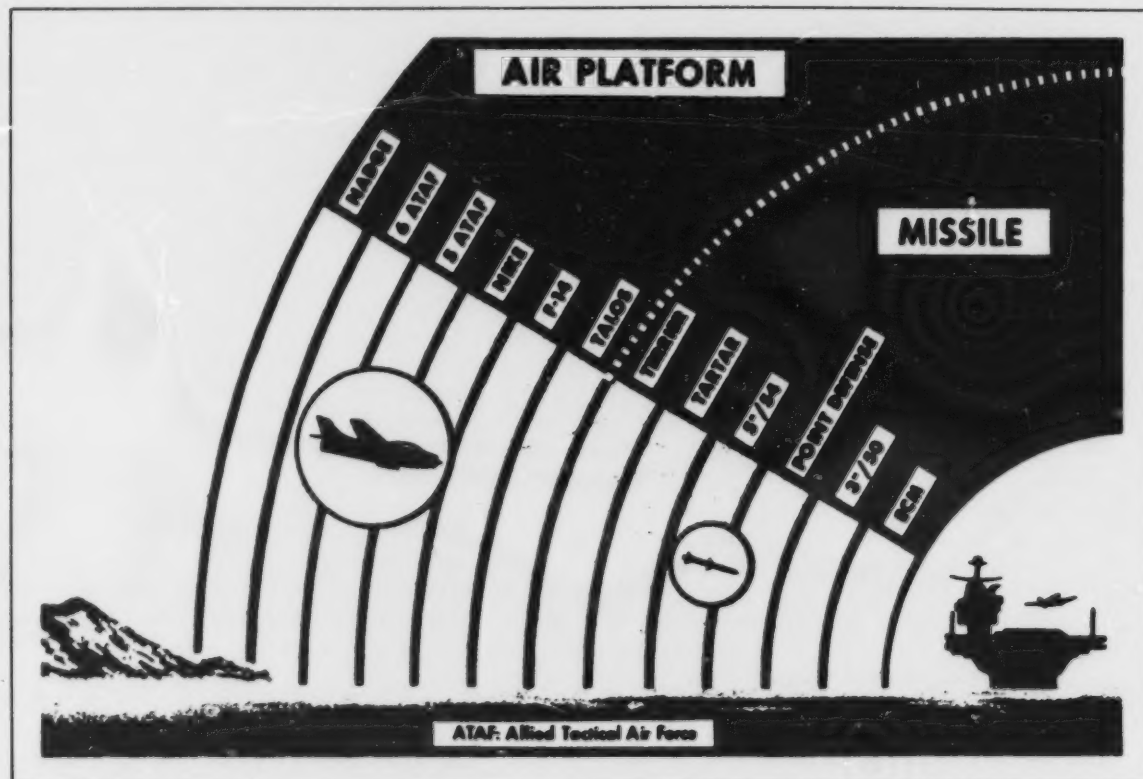


Figure 2

itation in the Mediterranean would be the availability of enough submarines to do these chores and others, and whether there would be enough time to get them into position.

► Attack aircraft from carriers: countering a heavily surface-to-air missile-equipped Soviet surface ship is not a simple function for an aircraft. It takes skillful use of weapons and resourceful air tactics, but with

stroy the weapon, or deceive/decoy the submarine or the weapon. With respect to destroying or deceiving/decoying missiles, the tactics are similar to the air and surface problems and will not be discussed. There are different tactics for deceiving/decoying the submarine herself, however.

There are large numbers of torpedoes in Soviet submarines in the Mediterranean in peacetime and

modest numbers of missiles. These weapons take on enhanced threat value because the submerged submarine is so difficult to locate. We have a reasonable probability of detecting the torpedo-firing submarines out to the ranges of their firing positions. To reach that position, the enemy submarine must penetrate the numerous close-in defenses that would be around the high-value unit: antisubmarine aircraft, our own submarines, helicopters, and destroyers. Beyond that, our chances of detecting the missile-firing submarine are much reduced. For instance, in moving from 5 to 25 miles, our defensive perimeter quintuples. This forces us to extend our defensive perimeter as in air and surface defense beyond the point where all arcs are well covered. In addition, water conditions are notoriously bad in the Mediterranean, particularly in the summer. As water conditions deteriorate, submarine invulnerability increases. Year-round, the submarine has the advantage in the Mediterranean.

The main problems for even the torpedo-firing and short-range, missile-firing submarines are locating and identifying the target. They can do that with acoustics alone—from our noise. But if the water conditions are bad for us, they are bad for the Soviets too. If they want to verify their acoustical data, they must put up a periscope and look or listen. To see an aircraft carrier, usually the biggest ship they are likely to be after, they must be within 10-12 miles. If we help, however, by indiscriminate use of electronic equipment unique to particular units, the Soviet submarines can verify our identity from much farther away.

The long-range missile shooter cannot target and identify on his own. He must have some outside help—maybe an aircraft which can see or hear us from hundreds of miles. Insidious as this may seem, in fact, this vital communications link gives us another point at which we can attack his system.

Our antisubmarine assets are divided into those which are capable of direct support or defense of specific forces and those which are employed in attrition operations. The difference is important because there are several tactical ways of employing antisubmarine forces:

► Direct support of a task force is little more than establishing a multi-unit point defense system—distributing various combinations of defensive units around the high-value unit. Antisubmarine units that are capable of keeping up with the carrier or whatever is the high-value unit can be employed in this role.

► Attrition operations can be subdivided into choke point control and open area search. An example of

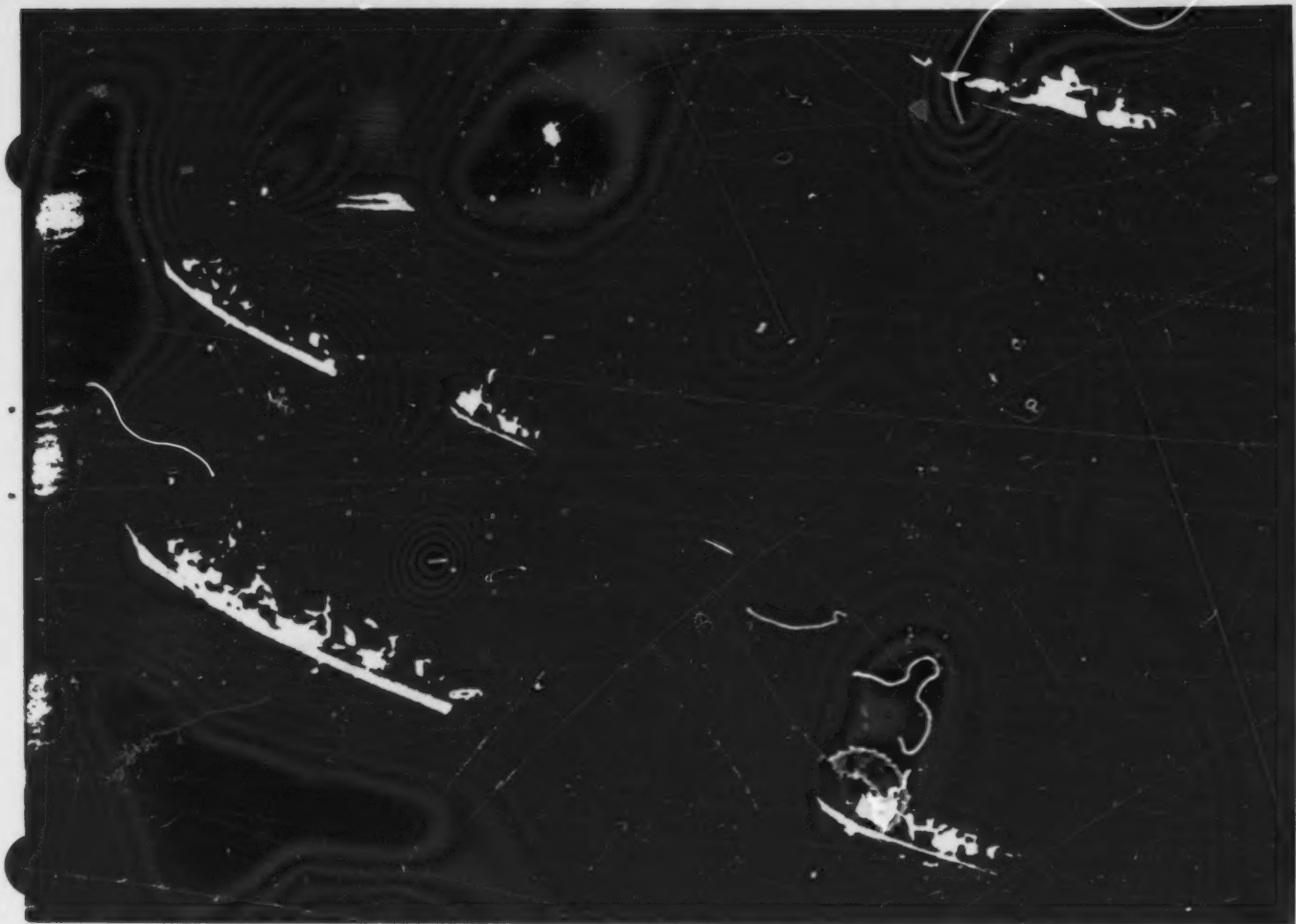
choke point control would be closing off the Sicily Straits, Gibraltar, or the Dardanelles both on and below the surface by means of submarines, maritime patrol aircraft, land-based helicopters, smaller destroyers, and mines to establish a barrier. Choke point control is an attrition tactic which wears the enemy down as he tries to come and go through these narrows. In open area search, submarines and maritime patrol aircraft can be sent ahead to search out and destroy the enemy if his approximate location is known, or if an area needs to be sanitized of any threat before its use by high-value units. This tactic could be used to establish an enclave or safe haven for friendly forces.

It is very important that antisubmarine actions be fully integrated because antisubsurface operations are not as likely to be sequential as are anti-air or anti-ship. One unit plays his strengths to the other's weaknesses. Success in antisubmarine warfare today comes from coordinated operations, not the unique capabilities of any one system.

In sum, in seeking to destroy the submarine, we have a wide variety of weapons and sensors. Each of them has only a modest probability of success by itself. If our tactics are good, we should be able to make the cumulative probability of success of a teamwork effort quite respectable.

We also must be conscious of special things we can do to decoy or deceive the submarine. There are particular opportunities here because a submarine is reliant primarily on one sensor, her acoustics. We must look at water conditions carefully and decide whether we would be better advised to operate in areas of high shipping density and consequent confusion of sound for the submarine, or whether it would be best to reduce our noise to a minimum and operate where the water conditions give us the best opportunity of detection. We should also not neglect the potential of acoustic deception techniques.

Operational Concept: In establishing an overall defensive posture, an operational commander must consider possible conflicts between optional tactics against each of the four threats. The situation will vary with the assets available to him and the expected threat. He may not be able, for instance, to place his guided-missile ships on a 100-mile perimeter and still have sufficient antisubmarine escorts for a close-in defense against torpedo-firing submarines. Or he may not be able simultaneously to have a tight circular defense to detect torpedo-firing submarines and a random formation to confuse enemy aircraft. Numerous trade-offs will have to be made in devising a coordinated defensive disposition. That is the



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kind of trade-off which operational commanders are paid to make. They will make such decisions based in large part on their estimate of the relative danger of each of the four threats but also on their knowledge of our own force strengths and weaknesses.

In the Mediterranean, a commander must also consider the special circumstance created by the Soviet practice of trailing and even targeting our ships with "tattletail" surface combatants or submarines in peacetime. There is a critical difference between land and sea warfare. At sea there are no front lines. Allied and Soviet ships commingle in peacetime, particularly when formations are large and dispersed. The Soviets can close their targets with impunity. But, at the same time, we are forewarned by their actions which we usually can see.

We could then expect a coordinated, preplanned, initial attack from aircraft, surface ships, and submarines. However, the very coordination of the attack would alert our forces and trigger appropriate counter-tactics.

If they shoot first, we cannot afford to delay in response. Once the attack is launched, everything will hinge on how well we are trained and how well we have thought through our tactical options. There

The Soviet surface units rendezvousing at Kythira anchorage in the Mediterranean today would be foolhardy to do so should war erupt. It seems unlikely that Russia would reinforce its surface fleet in the Mediterranean if war were imminent since there is a high probability that no Soviet surface ships could survive if we controlled the air.

will be no room for misfire or miscalculation. Once the war has started, it will be too late to train, to develop tactics, or to explain options.

Once there is a period of sustained conflict, the air, surface, and subsurface conflicts would proceed differently. The air-to-surface threat would be of the most concern in the short term because of the speed and quantity of attack the enemy could present. It would build quickly but then would drop off fairly quickly through attrition. While it would taper off significantly, it would never disappear entirely because there would always be the concern that the enemy might reinforce his land-based air forces from a distant area into a base within range of the fleet.

The subsurface threat would be the most difficult to handle. It would build up more slowly because submarines would have to move into position, and it

would take a long attrition operation to wear them down. But, if Gibraltar were closed, the threat could be made finite and eventually eliminated.

The surface threat would build up very quickly, but it would also wear down very quickly. Enemy surface ships could not survive in an air environment which we control. Besides, once they have fired their one load of missiles, they are eunuchs. Here again, if Gibraltar were closed, the threat could be contained and limited. An interesting question to contemplate is whether a Soviet admiral would reinforce his Mediterranean surface fleet in advance of hostilities knowing that there was a high probability that none would come out.

In summary, in the Mediterranean, sea-based air power is at center stage. Carriers are essential both to the sea control and the projection of power roles. While carriers will certainly be the honey to which the bear is attracted, they also provide the only sea-based capability to reduce the Soviet bomber force and the most flexible and rapidly moving capability to attack Soviet submarines and surface ships. They are important, therefore, for the contribution they can make to every other mission that is to follow. They are to be defended not for the sake of self-defense, but in the name of every naval mission that will follow their successful defense.

The issue which will interest ground and air commanders most is how long it will take to establish an *acceptable level of sea control risk* and get on with other tasks. The answer will depend on how well we survive the initial preemptive attack if that is how hostilities commence. If we survive well, sea control can be established quickly, at levels where naval assets can be diverted to support other operations. If we survive poorly and must wait for reinforcements or repairs, it will take longer—maybe too long. Once an acceptable level of risk is established, the priority of assignment of naval assets to tactical air support, amphibious assault, resupply, or reinforcement will depend on the remaining threat and the urgency of other ashore requirements as recommended by the land and air commanders.

There are four key points to this concept for containing the Soviet threat in the Mediterranean.

► First, an acceptable level of sea control risk must be established quickly. To do so we must pay attention to the indicators of a buildup, be alert, have

good tactics to counter the preemptive threat, and be operationally ready.

► Second, once such a level of sea control is established, the remaining enemy threat at sea can be worn down through attrition.

► Third, most of the requirements of land commanders can be met, but probably not so quickly as they would desire.

► And finally, the difficulties of the naval threat, the complexities of that threat, and the conflicting demands that will be placed on the naval commanders must be understood. There will be difficult choices to make. The wise establishment of priorities among these choices will play a major role in whether the land and air as well as the naval campaigns succeed in the Mediterranean theater.



Admiral Turner entered Amherst College in 1941 and two years later transferred to the U.S. Naval Academy. After graduation in 1946 (Class of 1947), he served a year at sea before entering Oxford University where his studies as a Rhodes Scholar led to a master's degree. After Oxford, he held a variety of sea assignments, including command of a minesweeper, a destroyer, and a guided-missile frigate which he placed in commission. His shore duties included the Politico-Military Policy Division in the Office of the Chief of Naval Operations, the Office of the Assistant Secretary of Defense for Systems Analysis, the Advanced Management Program at the Harvard Business School and Executive Assistant and Naval Aide to the Secretary of the Navy. In 1970, he assumed command of a carrier task group of the Sixth Fleet. In 1971, he served as Director of the Systems Analysis Division of the Office of the CNO and after that as President of the Naval War College. Assignments in recent years have been Commander, Second Fleet and Commander in Chief, Allied Forces Southern Europe. It was while serving in the latter billet that he submitted this article for publication in the *Proceedings*. Shortly thereafter, his classmate President Carter nominated Admiral Turner for his present billet, Director of Central Intelligence.



Commander Thibault is a native of Lexington, Massachusetts. He holds a bachelor of science degree in biochemistry from Tufts University, a master of arts in education from Boston University, a master of science in political science from George Washington University, and is a Distinguished Graduate of the Naval War College. He has served as department head in the USS *Malibon* (AKA-61), USS *Robinson* (DD-362), USS *Soley* (DD-707), and executive officer in the USS *Barry* (DD-933). He has had duty at the French Naval Academy and has served on the staffs of the United Nations Command, Korea and the U. S. Second Fleet. Commander Thibault was executive assistant and senior aide to CinCSouth. He is now assigned as Special Assistant to the Director of Central Intelligence.

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DEPARTMENT OF DEFENSE AUTHORIZATION FOR APPROPRIATIONS FOR FISCAL YEAR 1985

WEDNESDAY, MARCH 14, 1984

U.S. SENATE,
SUBCOMMITTEE ON SEA POWER AND FORCE PROJECTION,
COMMITTEE ON ARMED SERVICES,
Washington, DC.

MARITIME STRATEGY

The subcommittee met in executive session, pursuant to notice, at 3:07 p.m., in room SR-232A, Russell Senate Office Building, Senator William S. Cohen (chairman) presiding.

Present: Senators Cohen, Quayle, Wilson, Nunn, Stennis, and Kennedy.

Staff present: Arnold L. Punaro, staff director for the minority; L. Wayne Army III, William E. Hoehn, Jr., Bruce D. Porter, and Mark B. Robinson, professional staff members; Douglas R. Graham, research assistant; and Kathleen L. McGuire, staff assistant.

Also present: James H. Dykstra, assistant to Senator Cohen; Bernard R. Toon, assistant to Senator Quayle; Mark J. Albrecht, assistant to Senator Wilson; Francis J. Sullivan, assistant to Senator Stennis; William S. Lind, assistant to Senator Hart; Matthew H. Murray and James Steinberg, assistants to Senator Kennedy.

OPENING STATEMENT OF SENATOR WILLIAM S. COHEN, CHAIRMAN

Senator COHEN. The subcommittee will come to order.

I would like to welcome Secretary of the Navy John Lehman; Admiral Watkins, the Chief of Naval Operations; and General Trainor, representing the Commandant of the Marine Corps. They will present testimony on U.S. naval strategy.

Because of the classified nature of much of the information being presented here today, we will remain in executive session for the afternoon.

This is the first Sea Power and Force Projection Subcommittee hearing in review of the fiscal year 1985 Department of Defense budget. During the last few years, this hearing has focused mostly on the maritime threat. We enlarged the scope of the hearing last year so that we could discuss both the threat and the balance of U.S. and allied forces.

This year we are taking an additional step in this hearing by asking the Secretary, the CNO, and the Commandant to discuss the current maritime strategy and its relation to the national strategy.

(3851)

This extension of the subcommittee's past policy I think is useful in this year's budget authorization deliberations. This discussion should highlight our current plans and intentions as they derive from the current and expected capabilities of the threat, the current and expected capabilities of our own forces, and our national objectives and the goals of the administration.

We then should have a better understanding of the reasoning behind the procurement, R&D, and readiness programs that we have to review and must necessarily pass judgment upon.

I expect Senator Nunn to arrive later.

Senator Kennedy, if you have any opening remarks, we would be glad to receive them at this time.

Senator KENNEDY. Thank you very much, Mr. Chairman. This is my first hearing as a new member of this subcommittee and I am looking forward to the work of the subcommittee. I appreciate very much the opportunity to participate with you and other members of the subcommittee, our witnesses who are here today and who will be here in the future.

I am delighted to have the chance to involve myself in these issues and hopefully to play a constructive and positive role.

Senator COHEN. Thank you.

Mr. Secretary, would you like to begin?

STATEMENT OF HON. JOHN LEHMAN, SECRETARY OF THE NAVY, ACCOMPANIED BY ADM. JAMES D. WATKINS, USN, CHIEF OF NAVAL OPERATIONS; AND LT. GEN. BERNARD E. TRAINOR, USMC DEPUTY CHIEF OF STAFF, PLANS, PROGRAMS, AND OPERATIONS (HQ/MC)

Mr. LEHMAN. Thank you, Mr. Chairman.

I would like to ask your indulgence for a somewhat unorthodox approach to the briefing.

I would like to propose that we give you a presentation that should be seen not as a straight briefing, but as a framework for discussion. In it, we are going to try to tie together strategy, resources, force structure, readiness, and as we go about preparing our budget through the year, how it coincides with operations and long-range planning.

Senator COHEN. I think that would be very helpful.

Let me tell you that the nature of the problem, as you will hear from many of us around the table, is that we are constantly being told that we have extended commitments and underfunded resources and capabilities.

In today's paper, for example, I think the GAO released a story indicating that we are \$323 billion, or \$343 billion, short on existing programs. Not to coin any phrases, but some people are going to ask, "Where's the beef?" [General laughter.]

The question "where are we going to find the military capability to back up the commitments?" will be asked.

As Senator Nunn might say, you can either change your commitment and start withdrawing forces and redrawing lines; you can beef up your capability—and nobody is proposing an increase over and above what the President is talking about, but probably a reduction instead; or you alter the strategy.

I think it would be helpful to view this matter in the larger context of exactly where we are committed, why do we have these commitments, and do we have the resources necessary to back them up, or should we make alternate plans, strategy and resources.

Mr. LEHMAN. That is our purpose today.

I think you will see that the way we use the term "strategy" is not quite the way some of the critics and the press use the term. There is no attempt in our use of strategy as an intellectual framework to guide the actions of a commander or for programming and planning to be a substitute for a commander's judgment on the scene in the inherent unpredictability of any future conflict.

Too often, the strategic analyst tends to try to usurp the function of the man, the commander on the scene. That is not the way we use the term "strategy."

If it would be acceptable, I would like to stand and informally present part of this brief, with the CNO and our deputy commandant.

If it is acceptable to you, I would like to have it so that anytime you want to expand on any of the points on any of the slides, we do it then that way or we can leave it to the end, if you wish.

Why don't we start with the first slide.

MARITIME STRATEGY OUTLINE

National military strategy;
Maritime objectives;
Force posture;
Global naval warfighting strategy;
Exercises;
POM building.

First, one way to look at this is as an outline of what we want to cover with you today. The way we run our Navy planning starts with national military strategy. From that strategy we derive our maritime objectives. From those objectives, we establish a force posture, a 600-ship Navy or whatever other force posture is recommended. Then, we derive through a process that we will explain to you, the actual warfighting strategy and the role of exercises which are so crucial to the development and validation of strategy, theater by theater. Then, from all of this, we will show how we build our budget in the request that ultimately comes to you.

There is a perception that somehow it sort of grows, but it really derives from this process.

NATIONAL MILITARY STRATEGY

Deterrence;
Forward defense,
Global coalition warfare.

The national military strategy is primarily based on deterrence, on deterring nasty things from happening to our national interest. It is based on forward defense.

We are deployed throughout NATO. Our fleet and air forces and ground forces are roughly where our vital interests are. We are forward deployed, and that development is fundamentally based on

coalition approaches to all of our threats, not go-it-alone approaches, as an organizing framework.

NSADD-32 (20 MAY 82)

"US NATIONAL SECURITY STRATEGY"

Signed by the President;
Soviets the threat;
War likely to be global—sequential operations necessary;
Increasing importance of conventional forces—balanced forces;
Increasing importance of allies;
Forward peacetime posture.

This is the current guiding national security strategy. Obviously we all have heard the criticism that there is no strategy. But, while in a valid intellectual critique, there may be room to disagree with the current strategy, but it is simply not valid to say that there is no strategy.

This [indicating] is it. This embodies the framework of our national strategy today, national security design document, NSDD-32, and these are the elements.

As you will see, the problem we have to deal with is a global problem. We have to deal with its elements sequentially. We cannot deal simultaneously with every theater.

The conventional forces are the critical mass below the strategic umbrella. These forces must be balanced, land-based and sea-based, and the allies are sine qua non. We simply cannot approach any strategy without assuming very substantial allied participation, and a forward peacetime posture. Whatever starts is going to start from our forces being forward deployed.

[Slide deleted.]

Mr. LEHMAN. This is just a quick, rough schematic of a global war, which would be any war we become involved in with the Soviets, since they are engaged globally and their naval forces exist globally.

These SLOCs are a rough presentation of what we must keep open. These are our principal maritime objectives. We have to use them in order to survive, even for the first week, and to get deployed.

[Slide deleted.]

Mr. LEHMAN. This is a rough schematic of our alliances, treaties, and agreements.

Admiral WATKINS. If I may make a point, on the last slide, I think it is important to know that the whole issue around the Strait of Hormuz has two different aspects to it. The two aspects are that in peacetime, keeping the strait open is far more significant than in the early days of conflict.

So, what you are talking about under the President's initiative to keep the Strait of Hormuz open is the peacetime military mission which we are involved in today. The peacetime mission is much more important for the economic posture of the Western World than the wartime one.

In wartime, our analysis shows the strait could be closed for about 2 months without necessarily impacting severely the war-fighting capability of either the United States or the allies.

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I am bringing this up because SLOC protection has a different value in peacetime than in wartime, particularly oil SLOC.

So I think it is important to put this into context because sometimes we get our peacetime and wartime missions mixed up. We can survive in wartime with this strait closed for a period of time. I would say for 60 days, but this is theoretical. Certainly, it is not something for which we need to send large numbers of naval forces at the same time we are trying to take on the Soviet Union in the various fronts in northeast Asia and Europe.

Senator COHEN. If the Iranians should seek to close down the strait, is that peacetime or wartime?

Admiral WATKINS. Well, that is a political decision. Unfortunately, we call things that used to be acts of war, "adventurism" today. So I am not sure how it would come out.

Senator COHEN. I am just wondering about your statement, about the significance of keeping it open in peacetime as opposed to allowing it shut in wartime. If the Iranians seek to close the strait, and we go in to keep it open, what are you talking about in political terms?

Admiral WATKINS. I merely am pointing it out because I think it very clearly is involved in the whole discussion around the southwest Asia strategy.

The southwest Asia strategy was derived from a peacetime concept, far more than a wartime. Yet it is a very strong focal point for deterrence for the nation. There is no question about that.

We have to generate the capability to go in there in a regional conflict, which is not easy.

So, there are lots of good pieces of rationale that fit into a southwest Asia strategy in peacetime. I am merely bringing it up because it gets into the implementation of the contingency plans for the nation when you go to war, in a global sense with the Soviet Union. You don't go rushing over there with large forces and draw down all your logistic support and everything else to open that strait on day 1 of conflict because it really is not that necessary.

So I think those two points are very important as we deal with the variety of crises that we have in the world and the different strategies that take us from peacetime, say, to low levels of conflict, into crisis, into conflict with the Soviet Union.

Senator COHEN. Thank you very much, Admiral.

40 DIFFERENT TREATY PARTNERS

Mr. LEHMAN. You are familiar with and we often speak of the 40 different treaty partners that we have in a web of some seven security agreements. They form the political matrix of our military strategy.

The broad maritime warfighting objectives resulting from this national strategy are, first, to secure the critical sea lanes of communication; next, is to defeat the threat to interdict them, to neutralize the Soviet ability to interdict our SLOCs.

Senator KENNEDY. Mr. Secretary, may I interrupt you to ask a question.

I wish to detain you here for just a moment.

What percent of the oil that comes through the straits goes to Western Europe and what percent comes to the United States, Admiral?

Admiral WATKINS. That is variable. I believe the United States is 8 percent, depending on which figures you look at. It can go up to as high as 12 percent. It depends on how you work it out.

Thirty percent, nominally, is what is going to Europe, to some of the allies there, the West Germans and so forth. A larger percentage is going to Japan.

I could provide more accurate figures on that, but that nominally is the range.

Mr. LEHMAN. There has been a tremendous reversal in the last 3 years.

Senator KENNEDY. That's right. I am aware of that. I was just interested in being current on those figures.

Also, I would be interested in what those particular countries are doing, if anything, in terms of supporting the President's statement in regard to keeping the lanes open.

What can you tell us about that?

Admiral WATKINS. Clearly the French, the United Kingdom and the Persian Gulf States themselves provide support as does Australia to a degree. Japan has done little save their move toward providing a 1,000-mile SLOC protection, which improves our capability to project forces into the Indian Ocean. We would not be able to do that without some real support from the Japanese Maritime Self Defense Force. For the most part support for strait protection is rather nominal, except from France and the United Kingdom. France would give us significant help in that region were there to be any attempts by Khomeini to close the gulf.

Senator KENNEDY. Thank you.

STRATEGIC POSITIONING

Mr. LEHMAN. Strategic positioning, of course, is a fundamental role. Ninety-five percent of the logistics has to go by sea, and the navy has the responsibility to provide that logistics support for the land battle. Much of the support, particularly in the early phases of a conflict, in most theaters, must come from a sea-based platform.

So, it is from that tasking, those maritime objectives, that the force structure is derived. It is looking at what is required in each theater, given the fact that we cannot be everywhere at once, even to meet our vital interests, and we have to move sequentially. That force structure is the 600-ship Navy. These are the principal components: 15 carriers, a complete MAF lift capability plus an independently deployable Marine amphibious brigade, 100 attack subs, 45 cruisers, 70 destroyers, 100 to 110 frigates, minesweepers, and the balance of support that goes with it.

BATTLE GROUP COMPOSITION

PEACETIME	WARTIME
1 CV/CVN	2-4
1-2 CG/CSN	4-8
2-3 DDG/DDGX	4-8
2-3 DD	4-8
1-3 SSN	3-4

JFK AIRWING	
24	F-14
24	A-6
5	KA-6
10	S-3
6	SH-3H
4	E-2C
4	EA-6B
77	

NEW AIRWING	
20	F-14
18	F/A-18
20	A-6
10	S-3
8	SH-60F
5	E-2C
5	EA-6B
88	

MIDWAY (F/A-18) AIRWING	
48	F/A-18
10	A-6
4	KA-6
10	S-3
6	SH-3H
4	E-2C
4	EA-6B
86	

Let me say one word about the term "battle group."

There is a lot of distortion in what a battle group is. A battle group can be almost anything that includes an aircraft carrier, as opposed to a surface action group, which does not.

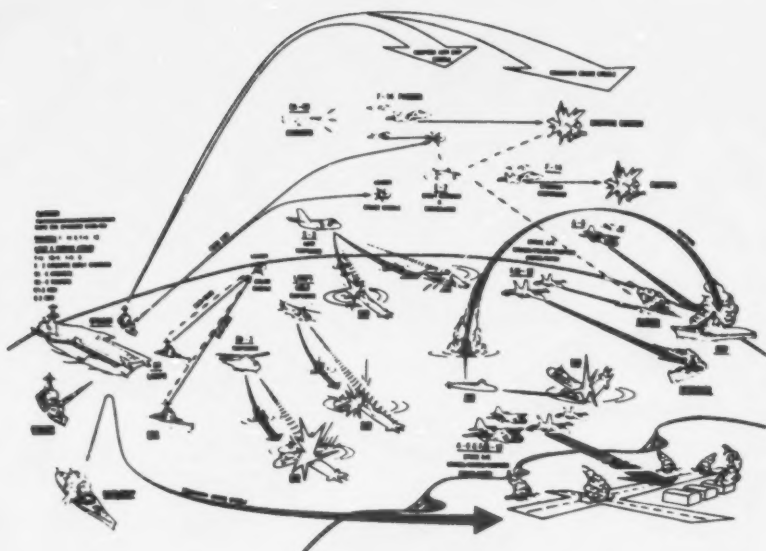
In peacetime, a battle group may be as small as one carrier and two surface combatants, such as a destroyer and frigate or a destroyer and cruiser. This is sort of an average peacetime battle group [indicating].

But, if we were to go to a general wartime conventional conflict, we would almost never be operating a single carrier battlegroup. They would have anywhere from two to four carriers using CINC warplanes as a guide. Of course, the size of a battle group is significantly larger for actually fighting in a conflict situation than our normal peacetime forward deployments.

This gives you an idea of the different types of airwings that we have today for different classes and sizes of ships. The *Midway*, of course, is a 40-year-old ship. We are transitioning that to an all F/A-18 wing. This gives you the mix of aircraft [indicating].

This would be the *Coral Sea* and *Midway* class.

The long-term plan, is to have anywhere from 8 to 12 of the new notional airwings. That is the mix of fighter, strike fighter, attack, antisubmarine, SAR, airborne early warning, and electronic warfare aircraft. This is the current *John F. Kennedy* wing [indicating] of which we will probably have from two to four. This is a heavy one for long-range operations, with F-14's and A-6's.



This is just a busy slide, specifically designed to be busy, to give you a schematic of everything that goes on simultaneously in the battle group. There are four dimensions: under surface, surface, air, and projection to shore.

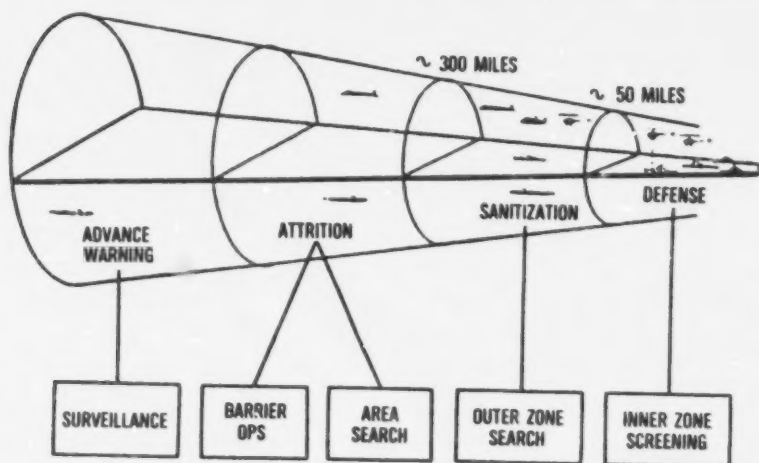
A battle group is a complex piece of machinery.

[Slide deleted.]

This slide gives one a slight misconception of what a battle group looks like, similar to what you see on the recruiting posters with the carrier and two destroyers, next to it, and so forth. There is this cluster of ships [indicating]. The normal, as we call it "4 Whiskey" configuration, covers roughly this much area [indicating] and controls an area about out to here [indicating]. This shows where the normal fighter CAP stations are. As you can see, it goes from Boston to Indianapolis, when you transpose it on to a map.

This is a typical operating formation for that kind of normal battle group operation.

ASW DEFENSE IN DEPTH



This just gives you a quick schematic of the kind of simultaneous warfighting and surveillance operations that go on constantly, 24 hours a day.

You hear in our budget presentations terms like the outer zone, the inner zone, Barrier Ops and so forth.

This shows you the kind of operations that go on the closer you get to the centroid of the operating group. Of course, the defenses get thicker as you move from way out with aerial and satellite kinds of surveillance, into the thick, close-in defenses.

[Slide deleted.]

This is the same thing applied to antiair warfare, the way we have the outer, long-range surveillance coming into the outer defense zone, and then the area defense and inner defense zones. The battle group has systems targeted to each of these different zones.

The closer you come in, the thicker your defenses get. The concept is a layered defense.

None of our systems have 100 percent PK, probability of kill. But the synergism of the overlapping layers is what the whole concept of defense is based on.

NOTIONAL AMPHIBIOUS FORCE COMPOSITION

MAF-MARINE AMPHIBIOUS FORCE (DIVISION/AIR WING NUCLEUS)

MAB-MARINE AMPHIBIOUS BRIGADE (REGIMENT/AIR GROUP NUCLEUS)

MAU-MARINE AMPHIBIOUS UNIT (BATTALION/AIR SQUADRON NUCLEUS)

COMBAT FORCES

	TROOPS	TANKS	FIXED WING AIRCRAFT	HELICOPTERS	ARTILLERY
MAF (ASSAULT ECHLEON)	32,600	70	280	340	100
MAB	15,500	15	110	120	30
MAU	2,500	5	6	30	5

This is our notional amphibious force composition. This is what a MAF would look like; 32,000 combat troops, with that many tanks, and with its organic aircraft, helicopters and artillery. We are carrying with it, in the assault echelon, 15 days of sustainability before the follow-on echelon arrives.

[Slide deleted.]

This slide has been downgraded to confidential. It is taken from the JCS warplans just to show how overcommitted our Marine amphibious forces are.

Of course, they cannot be everywhere at once, so it would depend on how the war starts and what the theater commanders and the Joint Chiefs of Staff decide as to where the allocation of resources should be. Every Marine unit is committed in some war plans to be several places at once.

Admiral WATKINS. I think it is important to stop here a minute to talk a little bit about that because one of the problems we are going to have as a Nation if we are coming into conflict with the Soviet Union is the willingness to deploy forces early. All of our war games, all of our exercises that we have run, where we have the very best people playing the roles, either on the Soviet side or the United States side in our games, indicate that, in fact, we will not make the political decision to move forces early.

This is how important it is. In war gaming efforts at the Naval War College we have analyzed the impact of delaying the forward and early deployment of Marines and Canadian forces with the air echelon, and the Air Force F-15's to Norway.

A matter of a few days may make the difference of the loss of Norway to the Soviet Union. Timing would be extremely critical. Therefore, with that kind of fragility in any contingency plan, it is essential that we develop a concept that deals with the crisis build-

up phase that insures that we are forward deploying forces. We are practicing that concept in exercises; for example in 'TEAMWORK 84 today off Norway. But we must get those marines over there, get them into a fighting mode, and get them out of the contingency plans for the defense of Iceland. We are working on that in the JCS, and the defense of Iceland has been given to the Army. Instead of having the Army come in at D plus 30, 30 days after conflict begins we are now saying that the Army must be mobilized to the point, say, in the 100,000 callup authority, to be able to quickly move into the Azores, Iceland, and the Aleutians. As a result, at D plus 30 we would not have the disruption and the need for heavy sea and air lift which is no longer available because it is now committed to the resupply of central Europe.

It is a very critical issue. It is one of those areas where we have competing requirements for the Marines. The Marines are in demand everywhere. They are the first to fight. So, therefore, we should be putting them into positions early, say at D minus 30, when we have a lot of warning, a lot of world unrest, a lot of indicators that we are moving toward conflict. That is the time to run some exercises and pre-position our forces into selected areas, not worldwide, but in small enough groups to move into areas that indicate to the Soviet Union that we have the resolve and the will to carry out the plan. Perhaps that is the final element of deterrence, so that we can avoid conflict if at all possible. This concept would be expensive, costing perhaps, close to \$100 million in exercise funds that were not previously budgeted.

This whole concept of early deployment and movement of the Marines has become very critical. They are out there in ships. They are ready to go. They are ready to fight, and we don't want to have them tied down to policing roles when the fighting begins. That is included in this effort within the Joint Chiefs to straighten out, modernize, and make our contingency plans more dynamic.

Senator COHEN. In view of what you said, do you think it is a wise decision to have deployed the Marines for all that time in Beirut?

Admiral WATKINS. Well, I would defer to General Trainor to answer that.

[General Trainor starts to answer.]

Senator COHEN. You don't really have to answer that.

Senator KENNEDY. I have one question.

FORCE QUANTITY AND SEALIFT CAPABILITY

How do you relate the relationship between force quantity and sealift capability, or support capability, in this timeframe?

You have indicated that there is a flow line in terms of time, getting people over there. What is the variance between force and sealift and supply?

Admiral WATKINS. We have some recent analyses that the entire southwest Asia concern over the past 4 years, Senator Kennedy, which address that very issue—not just in southwest Asia, but worldwide. From these we have developed what are called time phased force and deployment data.

We probably have tested those more than any other in our defense exercises over the past 4 years. They have revealed serious weaknesses in our ability to meet the time lines in the contingency plans.

So, obviously, what we have to do is not only modernize our lift, but refine our time phased deployment force and data schemes so that they can be flexible and not rigidly tied to one scenario or another.

So, within the next year, we will have a whole new modernized deployment scheme that permits the kind of actions I was talking about earlier, where some elements that might be deploying after D-day to Europe would be deployed at D minus 30. And yet that would not disturb the latter time phased deployment system.

Now, when you get into this kind of concept, then lift does not become so critical as it is not required all at one time. You can begin sequentially to employ lift so as to minimize the gap between the needs and the ability to lift it to the theater.

We are working on that concept and feel that we will just about be there by the 1988-89 timeframe; with the nearly \$5-plus billion that we put into sealift, and with what the Army and the Air Force are trying to do with intra-theater lift to move supplies from depots to the forward edge of the battle line.

This probably is one of the most aggressive, most positive contributions that Khomeini has made; to further energize us in this whole area of logistics support. But, still strategic lift is inadequate for the Nation as a whole.

We can meet our military requirements but the Nation is lacking in sealift for many other requirements, such as movement of strategic raw material and other commodities across the ocean all at the same time.

[Slide deleted.]

Mr. LEHMAN. In a peacetime posture, as the CNO has said, this is really the critical matrix from which any conflict will spring.

These are the friendly states and the friendly ships that we count on as part of our naval force. As you can see, the number is quite substantial. That is why we say that we can achieve naval superiority. It is quite a realizable goal even though we are not going to match the Soviets in numbers of combatants and other types of ships. We feel that taken together, our allied navies, along with our own 600-ship Navy, are clearly superior. They can do the task that we need them to do against the Soviets' ability to interdict. But, as you can see, and as every war we have been engaged in with allies has shown, all of these forces are not going to be there simultaneously. There will be a considerable time lag and variations in the allied navies joining into the conflict, depending on how it breaks out and where it breaks out. But, in any given area, all of our planning assumes a matrix of very efficient, good navies, like the Royal Navy or the Japanese Maritime Self Defense Force, in which our battle groups are designed to operate.

REDUCTION IN NAVAL CAPABILITY

Senator COHEN. Hasn't there been a reduction in the naval capability of our ally, Great Britain, because of the reduction in num-

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bers of their ships, particularly after what happened in the Falklands? Hasn't there been a diminution of their capability?

Mr. LEHMAN. The Falklands demonstrated the extent of the erosion of naval force throughout the western alliance, that had taken place during the 1960's and 1970's. There, we had a navy deployed without any air cover, or any 3-D radars or any close-in defenses. That, hopefully, has been reversed to a certain extent in the United Kingdom's defense program since then.

But if it has not been reversed, at least it has been arrested. They still carry the 50 destroyer-frigate number and there has been more funding.

But I would have to say that with the exception of France, the trend in all of the allied navies is disappointing. They are not keeping up sufficiently with modernization, with the ability to interoperate with us. They don't have the defenses to deal with the threats the Soviets are deploying. But, as the Falklands also demonstrated, we have damn good navies on our side, with very good professional sailors. They have a long tradition and excellent capability.

U.K. DEBATE ON TRIDENT FUNDING

Senator COHEN. What has been the state of the debate in Great Britain with respect to funding Trident versus more of the conventional surface ships?

Mr. LEHMAN. Well, it is a debate that in many ways parallels the debate that has gone on here regarding the amount of money going into strategic versus conventional weapons. For this period of time, in which the building, developing and deploying of four Trident submarines, is looming as a larger lump to swallow for the Royal Navy than our own strategic expenditures, it is a legitimate issue there.

Senator COHEN. Do you have any sense of what is going on over there? Are they still fully committed to the Trident?

Mr. LEHMAN. We see no indication of any flagging in their commitment to the Trident program. It is going along very well.

Senator COHEN. I am only raising this in the context of what they are doing in terms of tradeoffs between the strategic deterrence and a cutback of their surface fleet.

Mr. LEHMAN. They have not modernized their fleet as they would have hoped to and should justify, given the commitment to ASW they have in the eastern Atlantic.

Senator COHEN. My understanding was that they were reducing their number of ships and were going to try to compensate with air patrols.

Admiral WATKINS. Following the Falklands war, I think, Mr. Chairman, they backed off on that, at least partially, and restored the numbers of ships in their last budget.

Now what they do from this point on, we are not sure.

They are coming over here for discussion with us in the near future, and I hope to find out just exactly what is going on there because it is very critical to the alliance. They play a very important role in SLOC protection across the North Atlantic and into the Benelux ports.

So we were most concerned about the prospective demise of a part of the Royal Navy even before the Falklands war. That down trend has turned around, and now they are going to have to face the budget realities of the new Trident missile vis-a-vis their other forces.

I believe they will hang on to their strategic objectives, irrespective, and I think there is going to be tremendous British national pressure to build up the Royal Navy.

I really do think a very strong lesson has been learned there, and I cannot see them falling off the current numbers of 50 that the Secretary mentioned.

Mr. LEHMAN. Here is the maritime warfighting strategy. There are three phases to look at it in an analytical way.

MARITIME STRATEGY

Phase I: Transition to war.

Phase II: Seize the initiative.

Phase III: Carry the fight to the enemy.

The transition to war is perhaps the most crucial of all. How we position ourselves in the transitional phase, what Admiral Gorschkov calls the "battle for the first salvo" is critical. How we handle rules of engagement and the willingness of the political authority to deal realistically with the potential threat is crucial. In every crisis we get into, we see just how determinant that can be.

At sea, seizing the initiative is essential for reasons we will get to later.

Then, the final phase is war termination, to bring the conflict to a close as early as possible on favorable terms.

Senator COHEN. Would you distinguish between what the Admiral said about the war gaming—how we do not plan on taking the initial aggression or steps—with what you just said in terms of moving, of seizing the initiative.

Admiral WATKINS. It is very difficult to persuade the National Command Authority to call up the Reserves. It is very difficult to declare war. It is very difficult to read ambiguous signals and move forces based on those signals.

There is great consternation during the game on the part of the players about whether we are sending more of a deterrent signal by moving forces, or whether we are actually tearing down deterrence and encouraging adventurism.

That debate goes on and on.

Now it is a very realistic debate. I am not criticizing it. I am merely saying that the results have shown that the day we mobilize is the day we deploy, the day we commence conflict. It has developed that way in the games now for 20 years. I believe that this pattern of political inaction prior to receiving the first blow will be devastating in the next conflict.

Somehow we have to build up in this crisis period, the transition to war, in a new way. We have to think more aggressively in terms of the pre-positioning of forces. The rules of engagement must change to meet emerging circumstances. We now have rules of engagement out there in the Persian Gulf and the Eastern Mediterranean that are very essential. Those have been announced to the

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world, to Syria and to Iran. The zones have been set up because if we are threatened we have to respond.

So, as we approach conflict, it becomes much more difficult politically to allow a commander in the field to make his own judgment call as to when, for example, he is being targeted by an incoming missile with its fire control radar locked on. With all the other things in the world that are taking place to indicate that we are on the verge, does he allow the first missile to sink his ship, or does he sink the other? That is a very critical decision.

Senator COHEN. That is what I was trying to get at in terms of what is the line that is drawn between seizing the initiative and acting first.

Mr. LEHMAN. This [indicating] is post hostilities.

Senator COHEN. But I am not so sure that that is what the Admiral is saying. You are saying that it may not be possible to absorb that first shot and maybe we ought to take some action first.

Admiral WATKINS. Not just that it may or may not be possible to absorb it, but it may be wrong for the Nation to do that if, in fact, we have a responsive system that is really alert to the information and warning indicators.

It turns out that information and warning indicators I think are very good, even in an ambiguous form, and we can make moves during those periods of time—not unlike what we are doing today—but as a Nation we need to make the moves early. That, we found in our wargaming, is very difficult in any reasonable timeframe, like 30 days.

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MARITIME STRATEGY PHASE I

TRANSITION TO WAR

- WIN CRISIS/SMALL WAR
- DETER ESCALATION
- PREPARE FOR GLOBAL WAR
 - POSITION FORWARD
 - INCREASE READINESS
 - DECREASE VULNERABILITY
 - AVOID MALDEPLOYMENT
 - HUSBAND RESOURCES
 - MAXIMIZE WARNING TIME
 - CEDE NO VITAL AREA BY DEFAULT
- WIN CRISIS/SMALL WAR

Mr. LEHMAN. The first phase, the transition to war, is the most crucial. In preparing for that phase there are certain critical positions where we must have forces. We have to get the readiness up. We have to move from the peacetime posture.

You are all familiar with the cross-decking issue where, when a carrier comes into the Mediterranean, we often will cross-deck built up arms from the outgoing carrier over to the incoming carrier.

A lot of that makes sense in peacetime. Because even if all of your stocks are full it is just very inefficient to build up a Harpoon missile at Yorktown, carry it to the Mediterranean and then bring it all the way back and tear it down and put it back in the stocks. Once you get it built up, it is far more sensible to keep it built up and in theater. But, if you moved, in the transition phase, to an alert status, then all of your carriers have to have those Harpoons. You have to deal with that readiness need, fill the squadrons up, get the repairs done, and the spare parts lockers you have to do that have to be ready to transition from a peacetime operating posture to a wartime posture.

The other issues involved here will be gone into in more detail by the CNO.

[Slide deleted.]

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Again, phase I. This is just another schematic to show where, under the CINCS' plans, things have to get to, plans before the war starts, from their normal peacetime deployment.

This is a critical problem which is much less of a problem for us in the naval service than it is for the land services. If you tried to get all of those mal-deployed Netherlands units into their FEBA positions, that is very different and much more than moving your carrier group from the west coast to the Pacific.

[Slide deleted.]

This is not a very good graphic, but it is drawn directly from the latest theater CINCS' concepts of operations.

This shows where and how many carrier battle groups they feel they must have in each area to carry out the tasks that are currently assigned to them in the war plans.

So, as you can see, this is what is based on the CINCS' war plans right now.

Again, this is phase II, ceizing the initiative after the war has begun.

MERCHANT SHIPS SUNK BY U-BOATS

JANUARY - JULY 1942



This is just one illustration to show how critical going on the offensive at sea is.

This just shows January to July in 1942, when we had virtually lost the war. These are merchant ships lost in just this one phase, in the Caribbean and the North Atlantic, to a total of 57 German submarines—only 57 submarines.

This is strategic sea lift. This is Army tanks. This is the aircraft and ammunition that most experts believe had even three-quarters of this not gone to the bottom, the war would have ended at least a year to a year and a half sooner.

But, unfortunately, we had no way to prevent it at that time, because we had not gotten into a fully mobilized position. We had no air cover. We had insufficient destroyers to convoy. And so, just 57 submarines were allowed to prey on our sea lanes.

If that were to be the case this time—now—I hasten to add that in 1941, we were building one merchant ship a day in the United States. The day of Pearl Harbor, we were fully mobilized in ship building. We were doing even better than that in the year 1942 and we could not keep up with this attrition.

Today we have one merchant ship under construction in the entire United States, for the whole year, and we have no attrition.

So it is all very well for some critics to say that the Navy should stop worrying about new destroyers and more aircraft and buy sea-lift to move the Army; but it does not make very much sense to move the Army if they end up there [indicating]. We have been unable to force the Soviets into a defensive posture by moving out early to show them that they have to worry about protecting their assets, and use their attack submarines here [indicating], rather than here [indicating].

ESCORT AND COMMERCIAL SHIP RATIO

Senator COHEN. What was the relationship, the ratio between the escort ships—the cruisers and the destroyers—and the merchant marine ships that were sunk, the commercial ships? What were the numbers, compared to where they are today?

You said that we did not have enough to protect the merchant cargo lanes.

I would suspect it was a lot higher then than it is today. You are still talking about building up to a 600-ship Navy. How many Navy ships did you have in the inventory in 1942?

Mr. LEHMAN. In early 1942, we did not have that many. They really started to come in in the latter part of 1942 and early 1943, when the combatants that were laid down just before and after Pearl Harbor started to come into the force.

We were hurting. We had no escort carriers. We had virtually no effective maritime air through most of this segment here [indicating]. Most of the air cover was basically just coastal. We did not have what we have today, and that is an attack submarine to counter submarines preying on merchant ships.

I think that there were only two submarines sunk by other submarines in the whole Second World War. Isn't that right?

Admiral WATKINS. Yes, and that was on the surface.

Mr. LEHMAN. And they were on the surface.

Today our attack submarines are primarily focused on their submarines. That is why offense, with our submarines first pushing or forcing them into a defensive posture, is so critical.

SUBMARINE RATIO

Senator COHEN. What is the ratio between our attack submarines and their attack submarines?

Mr. LEHMAN. In nuclears, they have 116 nuclear attack subs and we have 94. They have about 150 diesel electric subs, which are useful to them in blocking our convoy routes putting them there as floating mines if you will. The diesel electrics are just as much a threat to an unescorted group today as they were in 1942.

So, their diesel electric threat is a threat to us.

Senator COHEN. What are the numbers?

Mr. LEHMAN. About 150 on their side and zero on our side. But there are about 150 allied diesel electrics. So we are not that far away from rough equality in numbers, given all of our allies. This includes the Japanese, the Australians, and all of the Europeans.

If they are all generated and at war, then they are part of our force.

Admiral WATKINS. I think it is important to know that is the way we play the war game in peacetime. Because of our sophisticated systems, we can act as the water manager for the allies in submarine operations and we do that. We know where each of our submarines is located. We control them to avoid mutual interference. We have communications links established. We have intelligence exchanges established. We know what their contingency plans are for wartime. They know ours. The missions are clearly defined, and there is no doubt in my mind that they are going to be very effective at the choke points of the world, which happen to be the exact same choke points that we would identify were we to have our own diesels and have to go it alone.

In other words, if we had a diesel submarine force the same size as our allies, 140 submarines of high quality, then we would position them exactly where they are, in the Skagerrat and Kattegat, down in the Straits of Gibraltar, in the Straits of Sicily. We'd be in all the right spots, down in the Straits of Malacca and throughout the world. That is where they are today. That is where the Japanese will be. That is where the United Kingdom and the West Germans will be, in the right spots. The Norwegians will be in similar locations.

We have the optimum relationship with the alliance in that they have the forward deployed diesels at the choke points doing the sea denial roles against the Soviet Union. That means that we can project our submarines forward into the areas where the diesel submarine cannot really penetrate.

The combination of the two forces that the Secretary mentioned earlier are absolutely critical to the equation and the balance, as to whether or not we can win the war at sea.

Mr. LEHMAN. Let me put back the earlier slide, merchant ships sunk by U-boats, for you.

There is one little point that I want to touch on here, and that concerns what is going on in Cuba.

Senator KENNEDY. Can you tell us when they moved toward that type of deployment, and do you have any conflicts on the demands that these countries want to protect what they consider to be a more limited national interest, rather than a total allied interest?

Admiral WATKINS. Senator, my observations have been, and we have operated with them for many years since World War II, and very aggressively in the last 10 years, that the commitment to the alliance is a very serious one for them. I do not see them dropping this commitment for other, you might say regional, conflicts with neighbors, if that is what you are referring to.

I have never seen that in any of the war games, in any of the exercises we have run, or even any of the back room discussions.

We have been very open about that because certainly we are not interested in the Spanish Navy being focused on an invasion from Portugal. Our allies are willing to talk about those things very openly. Our feeling is that their commitment is real and they are going to carry it out as long as the national leadership in their countries want to play the game. This includes France.

You always have that "if," but there is not any question at the military to military level where those forces will be in wartime.

Mr. LEHMAN. Notice the cluster of sinkings in the Straits of Florida, the Straits of Yucatan, and the Windward Passage. It would be exactly the same problem today as it was then because today, 85 percent of all Army logistics has to come out of the gulf. You notice the cluster around New Orleans and Galveston. This is crucial to the resupply of Europe, or to anywhere, to the Army, because here is where they embark for the resupply of the units committed.

It has to come through the 60-mile Straits of Florida or the 40-mile Straits of Yucatan. That is why the Soviets have been so smart in the way they have built up the Cuban Navy. They just got their third new Foxtrot diesel electric, which would be very good for sinking merchant ships trying to get through those straits, until we could neutralize them.

They have about 50 patrol, cruise missile, and torpedo boats, throughout the bay and estuaries around Cuba. It will be a real problem to get merchantmen moving through this area, in the early stages of a conflict, until Cuba is taken care of either politically or militarily.

I just wanted to make that point. The Soviets have been very intelligent in the way they have used their resources in Cuba on a maritime basis.

So, seizing the initiative is essential.

We have to move up north of the GIUK gap. We have to control the Norwegian Sea and force them back into the defensive further north, under the ice, to use their attack subs to protect their nuclear missile submarines, to use their attack subs to protect the Kola and the Murmansk coasts, and similarly their Pacific coast as well.

If we try to draw a "cordon sanitaire" and declare that we are not going to go above the GIUK gap or we are not going to go west of such and such a parallel, then, obviously, they have the capability to use their attack subs offensively against our SLOCS.

[Slide deleted.]

This is one issue that people keep raising, the GIUK gap versus the North Cape. It should be clear to everyone that if the NATO treaty means anything, it means that we have to protect and to hold Norway. The minimum reinforcement plans require both the Marines and the ACE mobile force to move by sea. They all have to go by ship, to Norway, after the conflict breaks out. If we allow the

Norwegian Sea to be controlled by the Soviet Union, Norway is untenable.

That is one important issue.

CONTROLLING THE NORWEGIAN SEA

Senator NUNN. Mr. Secretary, I have a question on this point.

The big question is not whether we try to control them, but with what forces do we try to control them, and whether you really are putting those carriers up there from the point of view of protecting that area and sea control, or whether you are going to take the battle to the Soviet homeland, which is what you had said.

Nobody is disputing the importance of that area, but the assumptions that we heard before, that we would not begin to put carriers up there—we heard this from the naval testimony, the military testimony—were unless we had control of Greenland, Iceland, and the United Kingdom. Of course, then the logical question is if you have control of that, why don't you use land-based air to a much greater extent than what you talked about.

I found a great disparity between your view on this particular point and that of the uniformed Navy.

Mr. LEHMAN. I would be interested in your pointing out what that disparity is, because I have not been able to find it.

Senator NUNN. I have not had an admiral yet who told me he would be willing to put those carriers on a mission to go right out to the Soviet homeland in that area.

Mr. LEHMAN. Senator, you keep saying that, but when did you hear me say it?

Senator NUNN. I heard you say over and over again that we were going to go after the Soviet naval ports and so forth with our carriers.

Mr. LEHMAN. I don't think so. I know that Bob Komer and others have said that I have said that, but I have looked in vain for where.

Senator NUNN. Why you have told me that.

I have heard you say it in hearings.

Mr. LEHMAN. I would be interested in seeing the transcripts of that. What I have said is, we cannot control the Norwegian Sea, if we cannot operate carriers there. In order to put forces into that area, we have to provide air support for them. So, we cannot control that area without carriers in the subsequent phases of the operations. I think that speaks for itself.

I have found no admiral that disagrees with me on that, except for those like Stan Turner and some others.

The fact is that I have never said we were going to steam carriers up there to lob A-6's into the Kremlin's men's rooms, as Barry Goldwater says. What I have said is that we have to go on the offensive early. We have to send submarines up there. It has to be premised on land-based air, substantial use of P-3's and Nimrods operating out of Iceland and the U.K. Our submarines have to go and nullify the Soviet submarine force before we can send any surface ships, certainly before we send the Marines up there in amphibious craft. And, once we have secured that, we have to be able to use carriers in the area to provide air support to the forces

there, so that they can do those tasks that are necessary to secure Norway.

Now, to take that one step further, for us to say that we have to prohibit any strikes for mining or for closing the naval bases and air bases in the Soviet Union seems to me nonsensical.

Senator NUNN. It is a question of what forces you do it with.

Your assumptions are that we control the United Kingdom, Norway, and Greenland. The question is do you put those kind of assets, the carrier assets, right up there in the heart of the Soviet area when you could do it with land-based air.

Mr. LEHMAN. How could you do it with land-based air? The range of most tactical aircraft in the U.S. inventory is about 300 miles.

TACTICAL NUCLEAR WEAPONS

Senator NUNN. What are you going to do if they start popping tactical nuclear weapons in that area of the world with your huge carriers in there?

Mr. LEHMAN. Well, what do you think is going to happen to our land bases when they start popping tactical nuclear weapons?

Senator NUNN. Well, I think there is a lot of difference between starting a land-based or sea-based attack.

Mr. LEHMAN. I think a carrier will survive a lot longer than, for instance, Ramstein, when tactical nuclear weapons are raining down.

Senator NUNN. Well, I have found there is a heck of a lot of difference between starting a land nuclear war and starting a sea nuclear war. If the Navy is so foolish as to put a whole group of carriers together and throw them right toward the Soviet heartland, if you put a huge number of your whole resources in there, why one theater nuclear weapon could wipe out your carriers and wipe out a substantial part of your fleet with no collateral damage at all.

If the Soviets ever were going to use tactical nuclear weapons, it seems to me that is such a target that they could not avoid it.

Mr. LEHMAN. Senator, there are far more valuable assets already ashore, and you have to defend them. The ability to put a nuclear weapon on a carrier, or a cruiser, or an amphib that moves at 30 knots is considerably more difficult than putting one on a land base that does not move at all. So, if the nuclear threshold is crossed, it is going to be a lot bigger problem than just worrying about the survivability of the carrier. Those carriers are going to be just as able to be hit by nuclear weapons if they are below the GIUK gap as if they are above it.

Senator NUNN. What I am saying to you is if you put all those resources together into one task force and head right toward the Soviets very strategic targets in that area, I think the very tactics you are describing will lower the nuclear threshold and make it much more likely that that nuclear threshold will be crossed, because you will have such a huge, lucrative target. It will pose such a threat to them that I think it will be almost irresistible.

Mr. LEHMAN. It is entirely dependent on how and when the operations are taken.

I think the Marine amphibious force is a far more juicy target than a carrier task force. If you think we can keep Norway without resupply vessels and amphibians and other ships, then you have not looked at the war plan. And if you think we can defend them more easily than we can defend a carrier, then I don't understand you.

How are you going to get your forces to Norway?

Senator NUNN. Well, the forces landing in Norway are essential to defend NATO territory.

Mr. LEHMAN. And the Soviets won't shoot at you, is that it?

Senator NUNN. You are not going to knock out any Soviet naval bases with a Marine landing force. I haven't seen any war plans that puts the Marines ashore in Russia.

Mr. LEHMAN. Are you suggesting that they won't shoot at the amphibians?

Senator NUNN. No. I am suggesting that that is not anywhere as attractive a target and is nowhere nearly the threat to them.

Mr. LEHMAN. But you are saying that you want to send the amphibians without carrier cover—that's what you're saying, right?

Senator NUNN. No. I'm saying that your plan to take the carriers in and attack the Soviet land base—

Mr. LEHMAN. Now where did I say that. You keep saying that I said that. Komer keeps saying that I said that.

Senator NUNN. You told me that in my own office. Over and over again I have heard you say it.

Mr. LEHMAN. Senator, I said that we cannot preclude the capability or disavow the capability to hit their forces that are threatening our forces with carrier air and land-based air.

Senator NUNN. Well, I think you have changed a good bit, and I am gratified, because what you are saying now is not the same thing I heard before. I think you are evolving in the right direction.

Mr. LEHMAN. Senator, I have not changed my tune since I came to this job. I have not changed it one iota.

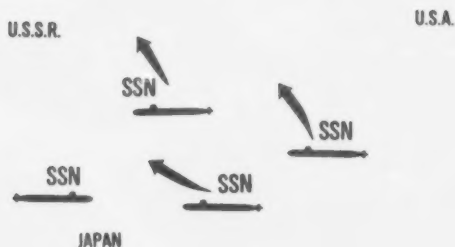
Senator NUNN. Well, then, my hearing is bad. I am usually pretty good at that.

Mr. LEHMAN. I would be interested in seeing those citations.

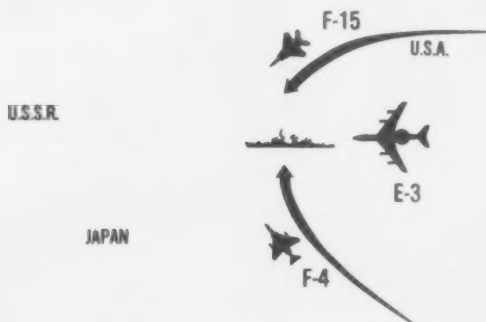
Senator NUNN. Well, I know what you said in my office. I know what you said to me. I don't have any doubt about that. I have it on the map, and you showed me exactly what your plans were. I do not agree that you haven't changed, but I am gratified that you have changed.

Senator COHEN. Well, as long as we are all at the same point and in agreement, maybe we should proceed.

Senator NUNN. I would like to see the war plans, though. I think that would be interesting.



Mr. LEHMAN. Similarly, this is the same phase transposed to the Pacific: forward deployment of the SSN's, moving them forward and putting the Soviets on the defensive in the first phase.



Similarly, as we did in RIMPAC we have been making maximum use of land-based assets, AWACS, F-15's, KC-10 tankers, and F-4's. This has been a key aspect, during the last 3 years, of the integration between the Air Force and the Navy that the CNO will speak to in some detail. That integration is now an essential part of the CINC war plans and has proven to be very successful in the exercises where we have used them.

[Slide deleted.]

Phase II is seizing the initiative.

Again, this is more readily illustrated and in more detail when we talk about the exercises theater by theater.

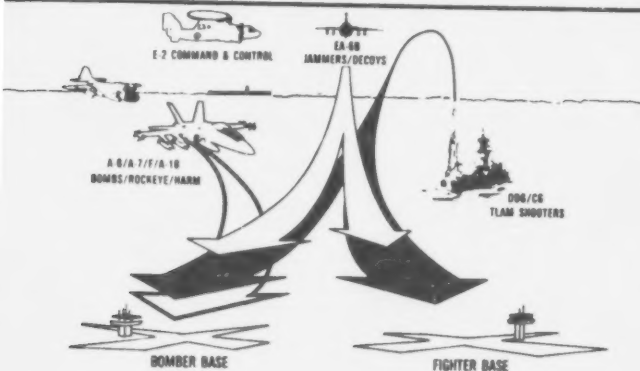
[Slide deleted.]

This demonstrates the use of amphibious forces, the Marine amphibious unit, MAB or MAF, in this phase of the war, depending on where you put them. They will be used for SPECWAR operations, reinforcements and seizing key terrain.

[Slide deleted.]

Again, war projection options are shown. These are derived from various exercises and war plans. We could go into them in more detail.

COMBINED ARMS STRIKE MISSION



This is drawn from a war game that was based on some fairly interesting intelligence. It is the use of a combination of land-based and carrier based air to strike the Soviet Union, to catch the Backfires on the ground. This one is based on Alekseyevka. In the war game, the exchange ratio that resulted from the computer analysis looked quite favorable. The fact is that Soviet naval bomber bases are not hardened. They are revetted, but not hardened, quite lucrative targets for both carrier and, in this case, land-based strikes.

[Slide deleted.]

This is a schematic of a projection mission in Central Europe based on the use of the Tomahawk. At most, some 70 main operating bases within the Warsaw Pact are within land-based Tomahawk range from the periphery of Europe, including the Mediterranean, the Bay of Biscay, and elsewhere.

[Slide deleted.]

This is another schematic showing the strike ranges of a DDG-1, a 963 or an Aegis cruiser with VLS, from a standoff point out to

here [indicating], they are capable of attacking these bomber bases with conventional Tomahawks.

[Slide deleted.]

TOMAHAWKS

This shows you the current plan in the budget for Tomahawks at sea including the SSN-688's. We now have 688's deployed with Tomahawk. With the 637 class submarines and eventually CG-47's, the 963's as you can see, you will have quite a few Tomahawk launchers at sea. We increase the number every year from now on.

Right now, we have them on four SSN 688's and one battleship.

SOVIET VIEW OF TOMAHAWK



This is a Soviet view of Tomahawk. The fact is that it is not just the carriers that the Soviets have to worry about now. Because, we now have many deployed ships that, from a strike point of view, are a potential threat to the Soviets in a wartime situation.

All of our destroyers and eventually, all of our cruisers and all of our attack subs will be potential Tomahawk shooters. This will complicate tremendously the targeting problems of the Soviets. They now have to worry as much about a destroyer as they do about a carrier from the point of view of transition to strike operations.

The final strategy is to carry the fight to the enemy and bring the war to a close. It is that ultimate end around which we have to lo all of our planning, to give the Soviets an incentive to come to terms and terminate hostilities.

[Slide deleted.]

This, again, is a schematic use, in this final phase of carrier operations, of Marine amphibious assault for striking the Soviet homeland, their military assets, and their bases, mining their harbors, and giving them every incentive to—

Senator NUNN. Mr. Chairman, may I ask one more question at this point?

Senator COHEN. Sure.

Senator NUNN. Now, if that does not show the Navy carrier attacking the Soviet homeland, what does it show?

Mr. LEHMAN. Senator, I said that in the final phase, that we never intended to steam carriers up to strike the Soviet Union in the early phases of the war. However, I also said, and have never changed my tune, that we must never put our theater commanders into a position of giving the enemy sanctuaries, by saying that we are never going to do this under any circumstances.

We must have the capability to do it. The Soviets are very vulnerable there. They have very ill-defended, high value assets that we have the capability to strike. Every theater commander ought to be able to think about using those capabilities to bring the war to a swift close on favorable terms.

PHASE I TO PHASE II TIMEFRAME

Senator COHEN. Mr. Secretary, what is the timeframe in going from phase I to phase III?

Mr. LEHMAN. No one has tried to put a timeframe on it because of the inherent unpredictability.

Senator COHEN. But you have to have some parameters on it because you have some real reinforcement problems and I assume some other logistical difficulties. You just can't have it open-ended just from day 1 to day 60 or 90.

Mr. LEHMAN. Again, I want to emphasize that our whole approach to strategy is not to try to fight the war for the CINCs. It is simply to provide for them the kind of capabilities, training, and planning for options to fight the war on their terms in whatever the timeframe might be.

War is inherently unpredictable, one can't easily determine how it will break out or how long it will take, for instance, to nullify the submarine force in the Norwegian Sea. That is a tough area to operate in. It may take a week or it may take a month or 3 months.

Senator COHEN. The reason I asked that question is it may help clarify some of the questions that Senator Nunn has with you and statements that you made in the past about taking the battle to the enemy. It depends. If it comes in phase I, then it falls into Senator Nunn's area of real concern, as to whether we have the capability or the wisdom. If it comes in phase III, which is after we have neutralized their various submarine forces and have

them bottled up and now on the defensive back home, that is something else.

Mr. LEHMAN. I believe that from the very start I have been consistent in saying that I am not going to try to tell any CINC how to run the war. I don't know when we should use it. He has to determine that but he should know that he can use the capability when he determines that he needs it.

Senator COHEN. But you would tell the CINC not to put the aircraft carriers up there, in phase I?

Mr. LEHMAN. No. It is really up to him, and, of course, the National Command Authority.

Senator NUNN. Mr. Chairman, you can't find a CINC who would ever do that. I haven't. I have had Harry Train in here asking me that very thing, and this chart makes exactly the point I am talking about, Mr. Secretary.

Admiral WATKINS. Senator Nunn, I think maybe I could talk about that during my portion.

Senator NUNN. He said he would not think about doing that.

NORTHERN WEDDING EXERCISE

Admiral WATKINS. I can address that in my presentation.

When we do the Northern Wedding exercise, for example, we essentially do sequential operations to roll back the enemy's defenses. We know how to do that. We know when to make our moves up into those regions. We have to know how effective the SSN surge would be against the Soviet bastion force around the SSBN's. It is very critical to force them back up in there. That is going to be watched very critically.

We will be positioning our forces down south of Iceland initially to rendezvous there and to ensure that we defend Iceland, and we will move those forces early to Norway, including the Marine amphibious brigade, the F-15's and the Canadian forces. If we move them early, move them right on schedule or before, then we have the chance to mount a synergistic effort—which I will illustrate—between Norwegian forces, U.S. forces, U.K. forces in the south, the defensive forces in Iceland—including AWACS, the F-4's and hopefully the F-15's in time—and then the Navy battle group forces.

That is a powerful combination of force to deal with the Soviets and I would like to tell you a little later how we would do that and roll back their defenses.

We are going to pick our time, pick our opportunities to go up there. But we are going to be very aggressive about it.

We think we could do that, but we can't tell you the time. I can't begin to tell you because so much of it surrounds the discussion when you were not here earlier, of early movement of forces and placing them in critical positions so that we have an opportunity to use our F-15's out of Bodo and the Norwegian F-15 aircraft to help us in the sea control mode.

I will show you an exercise where I think we feel fairly comfortable that we know how to move those forces up at the right tempo, so that we do not rush off willy nilly doing something that certainly we are not in actuality going to do. No CINC will do that.

BEST COPY AVAILABLE

Senator NUNN. Well, I would submit that by the time those carriers in one big group, as one lucrative target, start pulling close to the Soviet ports of crucial interest, if a nuclear war has not started at that stage, it certainly will by then.

Admiral WATKINS. Senator Nunn, one carrier battle group takes up 56,000 square miles. The neighboring one is 250 miles away. He also takes up 56,000 square miles. The other is off in another direction, another 250 miles. This is not a World War II kind of disposition. These dispositions cover an area equivalent to all of central Europe.

So we are not talking about ships that can be taken out with nuclear weapons in some kind of barrage attack. All the studies have shown this thinking to be unsound. The last administration used to talk about them being taken out with nuclear weaponry. It cannot be done, even statistically.

Most of the good analysts will tell you that tactic would be a loser when you have the disposition of forces that we are talking about.

It is not carriers all bunched together.

Senator NUNN. How are you going to attack the Soviet home port without having them close enough to launch your airplanes?

Admiral WATKINS. Again, I would like to put that in the context of sequential rollback of the Soviet defenses, so that we can get to the point where that is possible. That means we must cement Norway, cement Iceland—

Senator NUNN. But I am not talking about rolling back. I am talking about the last part on the chart up there, when you are attacking that home port of the Soviets. Are you going to have them spread so far that you can't even launch and get your planes there?

Admiral WATKINS. Oh, no. By that time we will move those forces forward, Senator. We are going to move them up. We are not going to sit there below Iceland.

Senator NUNN. Well, you just gave us the hypothetical example about them being spread out.

Mr. LEHMAN. Senator, you will see that in our exercises, we are now regularly running strikes 1,500 miles from the carrier with the -6. We have integrated the Air Force into naval operations. So, there is a tremendous amount of flexibility as to where you launch and where you recover.

We think the exercises show that you can do it.

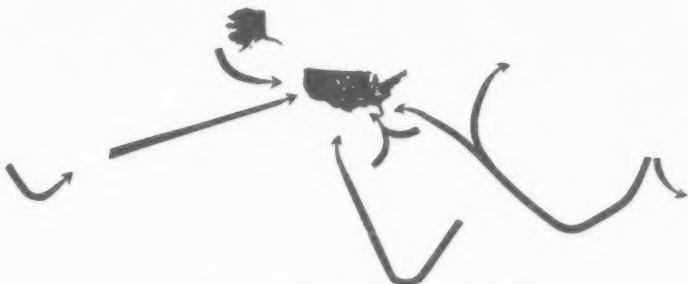
Senator NUNN. Well, Mr. Chairman, I have said enough on this. I just would submit that that chart is exactly what we have been saying.

Mr. LEHMAN. That chart is exactly what I have been saying for 3 years.

Senator NUNN. I agree with that. That is what disturbs me.

GLOBAL WAR

LIFE MUST GO ON IN WARTIME



- VITAL RAW MATERIALS COME FROM OVERSEAS
- POL FROM SWA CRITICAL TO JAPAN/EUROPE

Mr. LEHMAN. Well, one aspect of a global war is that life has to go on. The commerce, the resources, and the economy of our country still are dependent upon commercial sealanes.

So, quite apart from all the planning about resupply of the military, we still have to keep these sealanes moving, just to keep the economy going.

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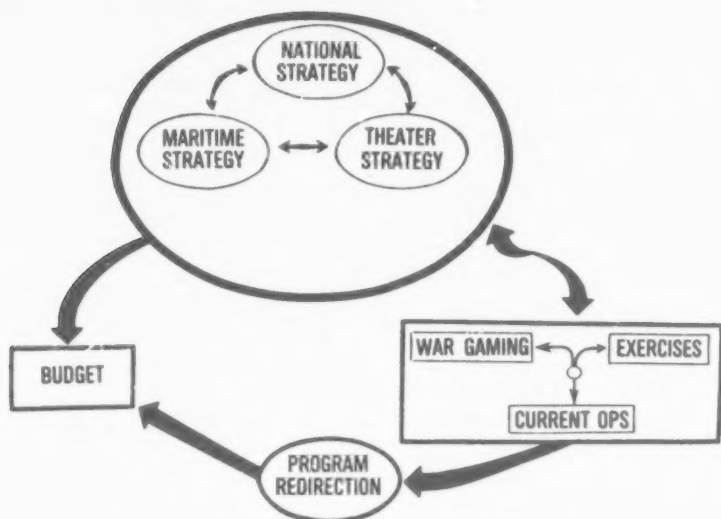
War termination, which I have already talked to, is shown here, to bring it to a close on our terms.

STRATEGY REFINEMENT AND VALIDATION

Fleet exercises;
Amphibious exercises;
War gaming;
SSG.

Now, I would like to turn the discussion over to the CNO at this point to talk about how we tie strategy in with the fleet exercises and the amphibious exercises that we run year-round. He will discuss war gaming, where we take the experiences from Ocean Venture or Teamwork 80 or whatever, put them into the computer, and run them through with variations. We use the results in both the annual war game and the subsidiary war games. We also have a strategic studies group that we have developed to bring together the operators fresh from the fleet and give them the luxury of spending a year at the war college to contemplate in tranquility the lessons of their recent operations. And it has worked extremely well.

So, Admiral, why don't you take over.



Admiral WATKINS. What we do is take the national strategy, convert it to the maritime strategy under the defense guidance system, and then through our war gaming and through our exercises in real world situations test it on a global basis. We try to formulate not only the programmatic aspects of our budget submission but, more importantly, the strategic and tactical employment of our forces.

So, we can see from all of these events that we in the Navy and Marine Corps are uniquely involved in a wide range of worldwide exercises from which we can extract an awful lot of information that can help us get ready for potential conflict with the Soviets. Certainly our exercises add to our deterrent posture if he sees us as a credible force.

Now, last year we were involved in dozens of exercises, the Navy and Marine Corps, worldwide. These exercises are conducted with our major allies multilaterally and bilaterally, and they involve all kinds of sophisticated operations. I will talk about a few to give you an idea of what we do.

These exercises are extremely important because, unlike any other service the Navy runs eyeball to eyeball with the Soviets daily, either in the air, on the surface or under the water. We share common territory in the international waters of the world.

So, we have a very special opportunity to view first hand the Soviet war fighting capability.

These exercises, then, bring out the Soviets and in many cases the Soviets actually act as our target forces, our orange forces, as we call them. They provide very effective exercise services to our forces because we can really see what we are up against.

This gives us greater confidence as we move into the war scenario events.

Senator COHEN. Do you ever have any suspicion that they may be employing the "Jim Brown technique?" He always used to get up very slowly after getting hit and you never knew whether or not he was hurt. Is there any indication that the Soviets, when they partake in surveillance of some of our activities are only showing you half or a quarter of what they have?

Admiral WATKINS. No, sir. [Deleted.]

So we have enough feedback from our intelligence network today to know exactly how we are doing relative to them, and that scenario that you just ran through is not applicable to the Soviet mentality.

[Slide deleted.]

WAR GAMING

War gaming, then, is one of the critical test beds that we use to check our maritime strategy.

As Chester Nimitz indicated after World War II, he never conducted a campaign in the Pacific that he had not already run in a war game. I think that is a very good lesson for all of us to take aboard. We have the sophistication in the war gaming centers today to be able to play very sophisticated games and test our contingency plans and give us a base knowledge. This precludes a newly appointed commander coming to command of a fleet and doing something with that cherished group of resources that has already been proven wrong.

So, the war gaming center is not only a way to test our plans, but it also serves as a data base for lessons learned.

We don't allow any exercise to take place at sea today that we have not war gamed. And now, with the \$18 million war game center at Newport, linked to the fleets at Norfolk, San Diego, and Pearl Harbor, and closely controlled by the naval postgraduate school software center, we can begin really to work these combined parts. Remember, we are talking not just about the Navy data base, but we are talking about employing the McClintock model that comes out of the Air War College and the Army War College data base as well.

So, because we have combined services represented at each of our war colleges, we are now coupled together in a much more synergistic way running these tests.

We fight every war with all forces and if it is a scenario in Central Europe, then, of course, what we try to do is maximize the leverage of the maritime strategy in countering the Soviet strategy and affecting the outcome of the war in Central Europe. We have been very effective, I think.

Senator COHEN. Has there been any compromise in those war gaming operations with the Norwegian spy?

Admiral WATKINS. To our knowledge, at this point, no, sir. But I have no idea of the depth to which he was involved in the military operations. Obviously we are very concerned about it.

But war gaming is a temporary thing. It is timely for today. What we war game next year may be just a little bit different.

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ARCTIC ANTISUBMARINE WARFARE

For example, we have run over the past 2 years a number of war games focusing on arctic antisubmarine warfare. [Deleted.]

This we know is their strategy.

How do we know it? [Deleted.]

Now you can say that perhaps it is a cover, a deception technique [deleted].

Again, you have to understand [deleted].

So we are ready to move in a flexible way [deleted].

So we are doing lots of work up there to see the degree to which naval forces can make a difference in the outcome of a conflict in Central Europe, [deleted].

We also can play with penetration aids. These are very important.

[Deleted].

Now we have done that, and that is why we are putting more dollars in electronics of all kinds. [Deleted.]

We can test all those in the war games and it gives us additional confidence that our budget is properly balanced.

**U.S. NAVY
MAJOR EXERCISES FY83**



What I have here is a series of exercises. You won't be able to read this side over here [indicating], but don't worry about it. I am going to go through about six exercises of the major types that we run, that we have run in the past 15 months, and I will bring you right up to date with the current exercises and talk a little bit about them, because it gets into the areas that Senator Nunn brought up.

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In each of the exercises, I have tried to list the main events, the objective of the exercises, and the lessons learned. Then I will talk about how they impact upon our budget decision.

Because this is so far away from your sight, let me talk from my notes.

[Slides deleted.]

This is Northern Wedding 82. There are 160 ships involved, 250 aircraft, 10 nations, a carrier battle group, air force in Norway, and so forth. I will go through the scenario.

The idea was initially, just before Northern Wedding exercise itself, to protect the Reforger resupply lines to Central Europe. We had six merchants going that way, and we defend them up along the Portuguese coast, France, and the Benelux ports.

AMPHIBIOUS TASK FORCE

So I am going to talk about the next part of the exercise, which is the amphibious task force landing at Jutland, and how we dealt with rolling back the Soviet air defenses during that exercise.

We optimized the various sensors that we had when we went into this position of the exercise to see if we could defeat our B-52's who were acting as Bear aircraft. As you know, B-52 radar is very much like Big Bulge radar on the Soviet Bear. So we could use them very nicely. We used jammers, including the EA-6B Prowler jammer, the super RBOC, the rapid blooming chaff off the ship, and for the first time we used rapid blooming chaff dropped in canisters from S-3 aircraft. It worked very effectively.

Now, we saw Soviets as well as our own B-52's. We had 102 Soviet sorties against this force, so we had plenty of exercise activity from the Soviets as well. We know they did not overfly our forces. We escorted them all the time.

Were we giving our tactics away? Well, maybe so. That is a problem we always have, of giving away some of our tactical procedures early. But it is still going to be very hard with their sensors whether they know we are going to use deception or not, and they think we will do it. They have for years. They know we are going to try to deceive them by these kinds of techniques.

The point is that they did not make any approaches on us that we did not intercept outside 200 miles, and they never did find the carrier because of the techniques we used.

[Deleted.]

TECHNOLOGY LEAKS

Senator COHEN. Admiral, may I interrupt you for a moment?

In view of the technology leak that we have in this country going to the Soviet Union, is there any reason to believe or not to believe that if we had a wartime situation they would not employ similar techniques against us?

Admiral WATKINS. They will employ similar techniques. We know, in fact, from our intelligence sources, that they have a setting for wartime and a setting for peacetime in many of their electronic systems, including radar. Their radars will shift to a different frequency, they will shift to different modes of operation, and we are going to have to be ready in our systems to shift with them.

Senator COHEN. What about their dropping of chaff or their dropping of acoustic devices?

Admiral WATKINS. We have watched them with their acoustic devices and chaff all the time. I will talk about one in which they utilized extensive chaff corridors in one of the operations off the Aleutians. We are very familiar with their techniques and we know how to deal with them. In fact, we have counter signal. [Deleted.]

So, there is a constant concern on their part that we are riding close behind them on all of their techniques.

Again, uniquely, the naval forces, due to our operating right next to each other, eyeball to eyeball every day of the year, we can, you might say, give away each other's tactics.

Now, some things we try to protect very carefully, obviously. Some of our electronics we do not use when the Soviets are around. There are some very select jewels in our crown that are protected very carefully.

Senator COHEN. Do they not have the same jewels they want to protect from you?

Admiral WATKINS. Of course, of course. That is why we have to be very wary. We have designed our systems to be flexible recognizing that we are going to have to shift modes, to be able to reprogram the various programmable systems, to be able to counter them. We think we can do that.

In fact, when they have changed modes and we caught them doing this, particularly in submarine surveillance, when they don't know we are there, we can then put that in our system and be ready to shift gears ourselves.

So I believe that we have some very unique sources that keep us pretty well on top of it. Special intelligence tells us that we are really making headway on them in this area.

The important part of this exercise, though, was the defense in depth—with respect to Senator Nunn's comment.

We had Norway, here, cemented. We had the marines there. We had the F-15's at Bodo, Norway. We were then able, with our defenses secured in Iceland, to bring the battle group up here [indicating], and when we brought the battle group up to protect the amphibious task force. Making one of the largest landings we have ever made at Jutland, we began to get this large volume of Soviet air coming down including Badgers and Bear aircraft.

We knew we would get that, so we positioned our forces, in a unique way, because we wanted to test our ability to pass sequentially the target aircraft to the various controllers in our layered defense and get many constructive kills before the Soviet aircraft got down into the area.

We had the *South Carolina* up here [indicating] in [Emcon] emission control for some time, and no Soviets picked it up, and we know that. So it was sitting there.

The Norwegian F-16's were put under the positive control of the *South Carolina* and were then making intercepts on Soviet aircraft out to 167 to 200 miles.

The next tier, then, were the F-15's out of Bodo, which checked in with the NATO AWACS. They were transitioned from the *South Carolina* to the NATO AWACS and brought to intercept the Bears.

Then we had F-4's working with the Air Force AWACS out of Iceland making the next intercept.

Then we had NATO AWACS making intercepts out of the United Kingdom with F-4's, and then our own E-2C organic to the carrier picked it up from the AWACS and intercepted it with the F-14's—all between 250 and 1,000 miles from the carrier.

So, if we can cement these regions, and if we can operate air out of Norway and Iceland and the United Kingdom and our forces here, synergistically we will have a very powerful mechanism to roll back.

Now, obviously, you could say the *South Carolina* is vulnerable out there. We know that. We probably would not position her there without a lot of concern about it. But we wanted to see if she could get up there in a total Emcon against the Soviets and not be detected. She was not detected.

So, it is kind of interesting for us to watch some of the real world events taking place.

These give us a lot of lessons, both strategically and tactically, that we feed back into our data base.

The Norwegians for the first time allowed these F-15's to fly against the Soviets. Heretofore, it had been against their national policy to allow any of their land-based air to go out against the Soviet Union. It was a very important operation.

Senator NUNN. Admiral, if I may ask one question, was there anything that tested the concept in the exercise, as shown on the chart, that we were discussing a while ago, of taking way beyond the *South Carolina* and turning the bend and going up right next to the Soviet homeland? What did you do to test that? To me it sounds like you are talking about two different scenarios altogether.

Admiral WATKINS. Well, we have one underway today. Teamwork 84 lands a Marine brigade at Tromso, in northern Norway, almost on the border with the Soviet Union. Today the Soviets have [deleted] nuclear submarines surrounding the battle group up there. The battle group is up supporting the marine landing.

[Deleted.]

So, what we are doing is exercising that final phase that perhaps you need to project power ashore with marines somewhere in cold weather. We are not necessarily saying that is in anybody's scenario. But I think it is very important that we run that operation, and it is very important that we find out what the Soviet response is.

Senator NUNN. Again, that is not the same scenario or exactly the same location that you'd have if you were going after the Soviet home ports. I am talking about two different things. I'm not talking about protecting the marines. Anybody who says I am not for protecting the amphibious forces is totally misreading what I am saying. I am talking about carrying the battle to the Soviet homeland and basically using the carrier task force to go after the Soviet home ports.

I have seen nothing in anything of these scenarios to indicate to me that you have tested that at all.

Admiral WATKINS. Well, we don't test it by flying into the Soviet Union, Senator. We test it all of the time, though, just as the Soviets do with us in the Caspian.

Every operation we have run we gear our land mass to perhaps a Soviet site. For example, we may run a Crimean scenario in the Caribbean.

You may not see that, but we simulate running strikes into the Crimea, low level strikes across the Black Sea using AWACS and F-15's and naval forces.

We know how to do that.

Would we do that at the front end of a conflict? Maybe we would. In the Northwest Pacific our feeling is that at the very front end of conflict, if we are swift enough on our feet, we would move rapidly into an attack on Alekseyevka, and we think we could get away with it, because we know what the Soviet real capability is.

They are not 10 feet tall, but there are a lot of them about 5 feet 10. We know where those weaknesses are up in Alekseyevka today. So we might put a carrier strike in there along with the Air Force. We know how to do that. We test that with the Air Force.

We did an exercise that I will talk about later on.

But I would not preclude an opportunity to go in and clobber the Soviets at the right time and the right place. Whether northern Norway access is going to be available is another matter. But we need to be ready to do that, and perhaps not there, but in the Crimea and in the Northwest Pacific. It is a very real opportunity up there for us to make a difference.

[Slide deleted.]

Senator NUNN. But, as I understand it, you are saying that it is very unlikely in this area?

Admiral WATKINS. I think it is unlikely at a very early state, and I just don't think any of our unified commanders at this point see it as anything but a very carefully planned and coordinated roll-back operation with heavy SSN to SSN combat in the upper Norwegian Sea. That is where the action is going to be in the early stages. Would the attrition be how well would we do against the surface ships. If we can eliminate the bulk of the surface ships and submarines in the northern fleet, which is our objective then the Soviets will have a heck of a problem with their land-based air as the only real mechanism remaining to deal with us.

TESTING AGAINST BACKFIRES

Senator NUNN. Did you mention the Backfires? Were you testing against Backfires?

Admiral WATKINS. We did in this slide. This was the only time we had Backfires fly out against us. But you will see, probably in a few days, the Soviets using Backfires for the first time against our carrier battle group because of where we were located, which was at the very tip of Norway, right at the top of the northern end of Norway.

They are forward deploying those Backfires today to the cape, and I expect they will fly out for the first time over our forces here in a few days. We are expecting them to come out and we hope they do. We want to intercept all their communications, their radar, and all of the things they do to target us. When we can tell that, then we know how effective we have been, and that might tell us now is the time to strike.

So, I would not rule out anything in the early stages. But I am telling you the normal scenario in the Northern Atlantic-Norwegian Sea is characterized by aggressiveness, and also care, in selecting our timing for moving those forces up into the region. It is very well planned, in my opinion, with SSN's being up there before the conflict starts.

We are working on that today. You may not see it, but in time you will see surge deployments of SSN's worldwide. We are getting into it again.

We just surged out of one port. This month we will surge out of two ports, Hawaii and San Diego. Later on in the year we are going to surge in all ports, and that would be something that we will discuss with the National Command Authority and possibly with the President, to see if we need to alert the Soviet Union that we are doing that, because we have not done it for about 30 years.

So, we know how to surge, and this may be the tool in the President's kit bag 30 days or so, 10 days, before a conflict starts. At least he can do that because that is not provocative. You know, get your SSN's on the way.

Senator NUNN. I agree with you on the SSN's completely.

Admiral WATKINS. They will have a very powerful impact in the northern fleet and up in the sea of Japan, the Sea of Okhotsk, and Bering Sea.

This exercise last year was one of the best exercises that we have run with the Air Force. We had 30 F-15's, AWACS and KC-10 tankers, working together with three battle groups.

The *Enterprise* battle group was returning from WESTPAC. We brought the *Midway* out of Japan. We were deploying *Coral Sea* to the Western Pacific. We rendezvoused up here [indicating] and we tested our ability with the Air Force to coordinate strikes at Petrovlosk or Alekseyevka.

One of the important elements of this exercise was to test our ability to detect and kill the *Victor III*. It was also to test our ability to operate in terrible weather. It was zero degrees up there the whole time, with 50 to 70 knots of wind. We couldn't even fly off the small deck carriers. We could only fly off *Enterprise* at certain times. And, if we hadn't had our Air Force KC-10 tankers on two occasions, we'd have mixed up the wings by having *Midway* and *Coral Sea* aircraft forced to go to *Enterprise* instead of to a divert field.

AWACS were controlling F-14's, surface ships were controlling F-15's, we had total integration, and this was one of our objectives in the Navy-Air Force memorandum of agreement signed by General Gabriel and me. We intend to pursue aggressively this land-based, tactical air and support maritime operation. We are doing that worldwide now in all exercises.

It has extended our ability to project our combat air patrol another 300 miles forward. This is very, very useful in areas where we can be reached by a land-based tanker. Of course, this is a very aggressive operation, and our AWACS aircraft link with Navy units when they can't link at all with Air Force units. The Air Force has not gone into data exchange, and we have. So the AWACS controllers love to work with our F-14's.

LESSONS LEARNED ON NORTHERN WEDDING

Senator COHEN. Did you cover the lessons learned in Northern Wedding?

Admiral WATKINS. The Northern Wedding lessons learned were primarily in a certain area.

Senator COHEN. Excuse me, the one question I had was on the Nimrod.

Admiral WATKINS. Nimrods were very effective in Northern Wedding. The Searchwater radar was the sensor that detected every one of the snorkels from the NATO diesel submarines that were out there. We had six NATO diesels out there, and every one was conclusively killed before the carrier battle group got to the GIUK gap.

So, it was an extremely effective sensor.

Now, we have the new radar that is going into the P-3 being tested today at Pax River. It is very much like the Searchwater. It is compatible with the P-3 system. Its initial operational capability [IOC] will be 86. And we are accelerating that as a result of some of the lessons learned on Searchwater performance, which has been impressive, particularly in the imaging area. It was very effective. Most of the others were mentioned in the discussion in terms of the tactical lessons learned.

The lessons learned here were that we had misjudged the absolute sound and pressure levels of the Soviet *Victor III*. We had made an estimating error, and found that they were quieter than we had thought.

This required all of our forces, and we had six SSN's on our side, to be in direct support of the three carrier battle groups, along with surface towed arrays and land-based maritime patrol aircraft [MPA]. We had LAMPS MK-1 helicopters on Canadian oilers. We had a whole range of forces being brought to bear in the antisubmarine warfare area just to work over the *Victor III*'s that they sent out after us. We learned that they are very hard to find.

But, what we also learned was that where we had the towed array that covers the low frequency band it was effective every time.

So, we had one sensor that was effective in detecting the *Victor III*. What does this tell us? The lesson learned is if it gets hot, is very successful, then we need to get the low frequency end developed and accelerate its introduction into the fleet.

Now we are working on that. We have put extra dollars into the low frequency end so that we can go after the propellor blade rates and the other things we have to get on a quiet submarine.

So, that was one of the lessons learned out of the operation. Also, many lessons were learned in terms of cold weather operations.

Senator COHEN. Do those same lessons apply, say, to the Mediterranean or off the coast of Lebanon? Do you have a difference in water temperature which interferes with that kind of detection?

Admiral WATKINS. Oh, very significantly. Every place is different.

The [deleted] will, in the process of selling a ship, like the [deleted] class, take a customer out on a sonar run in an excellent area sonarwise. When the customer, say [deleted] buys that ship, and

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takes it home, they can only get about one-tenth the range that was experienced in the test sonar run. The customers get upset, but actually sonar ranges are quite predictable. The ranges vary all over the map—passive and active. The Mediterranean is extremely noisy, the North Atlantic in some areas where there is heavy traffic is extremely noisy, the marginal ice zone is extremely noisy, and yet, under the ice it is very quiet.

So, we have to go into every single spectrum. We have excellent sensors to give us the information. We are actually building new sensors, called the Navy Oceanographic Surveillance Satellite, to go airborne and help us find those areas of the world, not only to hide in but also to better detect the Soviet submarines. That is another lesson learned.

We are seeing how important real-time data on the environment is. We can't have the information next month, that is, what it was a month ago. We have to know it today, to be able to hide in it and to be able to exploit it in terms of antisubmarine warfare.

All these things we have learned.

[Slide deleted.]

By the way, this is the first time we have been off the Aleutians since World War II. It is very important that we get back up there. It is part of the new, and rejuvenated, Pacific Basin strategy of the Unified Commander. Let's get back into the Aleutians and demonstrate to the Soviet Union that they don't have a free ride and divert their attention away from Japan which has been so intense of late. They are going to worry a lot more about looking east instead of south to Japan. We can make a difference. Kamchatka is a difficult peninsula. They have no railroads to it. They have to resupply it by air. It is a very important spot for them, and they are as naked as a jaybird there, and they know it.

[Deleted.]

[Slide deleted.]

United Effort was a major transit exercise across the ocean. Again, we were trying to defeat the Soviet ocean surveillance system.

This is a bone of contention between Jim Gracey of the Coast Guard and myself. He keeps thinking that he is going to get blown out of the water because he is a simulated carrier, but he has agreed that that is a good role for them to play. [General laughter.]

The integrated intelligence analysis system was put in the United Kingdom. This is the Fleet Ocean Surveillance Information Center which receives real time downlink information from our satellites. That proved to be extremely successful and gave us some clues as to how we could accelerate the intelligence input into our carrier battle group.

We had cover and deception throughout the exercise, and not once did we allow any of the Soviet or our own orange aircraft to get in on us undetected. They were not able to target us because of the same systems that we used.

We used the 4 Whiskey formation nominally 56,000 square miles inside that one battle group, nominally, in that are. I will talk a little bit more about that later because it is a very important concept.

[Deleted.]

[Slide deleted.]

READEX 2-83 was a very special exercise in which we prepared *Independence* and *JFK* carrier battle groups for operation in the eastern Mediterranean.

Because things were heating up over there, our scenario then was built around the concept of using the Puerto Rican island of Vieques and the Dominican Republic here—this is really west—for running a scenario involving Damascus and Lebanon. Crises building up there could degenerate into conflict with the Soviet Union.

We do this rather religiously. We pick out where Tel Aviv, Haifa, Damascus, where those sites are, Nicosia and so forth are, and we run operations, escalating the scenario with more and more conflict as time goes on in order to better prepare our ships.

This is a very important exercise because many of the features that were in this plan that we exercised on in the Caribbean were actually seen by both of the battle groups when they actually had to put in aircraft over the beach.

We know all of the electronic warfare order of battle. We know the forces. We know where the radars are. We know what the threats are, and so we were able to do our strike work, do our planning, and so forth, in a very realistic way in this sort of picture.

That is how we run our exercises. I pointed out that it was rather unique.

In addition, in this particular one, we fired Harpoons, seven Harpoons, seven hits against a hull. For the first time, we had an integrated strike of Shrike, Harpoon, and Standard ARM that all hit the target at the same time, which is in the scenario of our standard operating procedure for running coordinated strikes against ships.

Now the next slide, and we are closing it out here, is the real world.

[Slide deleted.]

REAL WORLD SITUATIONS

The real world situation is also every bit as important for us as exercises. The real world would include Grenada, Lebanon, the Strait of Hormuz, and the Falkland Islands. From the Falkland Islands experience we accelerated our electronic warfare assistance because we saw how easy it was to use some of the low cost systems to ensure that our fleet was not put at risk. As a result of the Falklands conflict we accelerated our mine countermeasures ship program. We have to ensure that we have the capability to move quickly into the region with adequate airborne and surface mine countermeasures systems.

The point defense system was probably the biggest lesson learned. We put \$167 million into accelerating delivery to the fleet of our close-in weapons support system. This, by the way, was almost \$500 million [indicating] of refocused resources to move into a whole variety of electronic warfare systems.

In Lebanon we have just purchased decoys and remotely piloted vehicles (RPV's) from the Israelis. We are not as proficient today as we were in Vietnam. We have to get back into the business, and perhaps we can avoid employing our TARPS aircraft in Third

World regions where the RPV can go in and survey, and send back signals as to what to bomb, what the damage assessment might be, for example.

On the tactical reconnaissance pod, we learned how to use our TARP missions very effectively over there, and we will be making certain recommendations and changes in our program to optimize our ability to do standoff reconnaissance. For example, optical standoff reconnaissance equipment is now being accelerated in research and development.

Ship/shore intelligence fusion: we found that we could provide the marines with a lot more offshore sensor information by taking information from a warship and patching it into the short-range intelligence network. We are doing that more and more now. In fact, we were doing that with the current intelligence that came out of Lebanon.

In the future, we will be able to fuse to the marines condensed information so they don't have to sift through the volume of data that is more chaff than wheat.

We learned a most important lesson about rules of engagement in Lebanon, and that was, get aggressive with your rules of engagement so you don't take the first hit from "crazies."

We are doing that now there and in the Persian Gulf. I think that is a major step forward for the President to allow us to do that, so that we give the commander on the ground some feeling that he does not have to take a kamikaze attack before he brings down that kamikaze.

That is a very delicate balance, so that we don't end up with a KAL-007-type problem on our hands.

Senator COHEN. Or a Czechoslovakian airlines.

Admiral WATKINS. Exactly.

But the way that is handled, of course, is that we announce through demarches to the nation that is making the threat, and to the world that in this region, around American ships, we have these rules, and to stand clear, to come up on guard frequency, talk to us, don't come charging at us from 2,000 feet and 5 miles away and expect not to get a bunch of tracers shot across your bow. And if you come much closer than that, you are going to be brought down.

That is the game we are playing in the gulf and eastern Mediterranean. We will raise those rules elsewhere in the world as necessary to respond to irresponsible nations who are using this as their mechanism to get the United States.

In Grenada, we have a working group convened now to compile all of the lessons learned. One of the quick lessons learned was to give our SEALs \$5 million. We had no idea that their equipment was not completely up to snuff. The system does not protect the SEALs well enough.

We have completely revamped our organization structure and brought decisions concerning the SEALs up to my level. All they needed was \$5 million to put them in 4-O shape. They had engines that had broken down during their operations and that sort of thing, which was really devastating to the operation. We can fix that quickly. That was a lesson learned. This means that we can get photographs from overhead, transmit them to the shore system,

back to the carrier, and they can actually use them for targeting. It is a very, very effective system. We will be able to use that information for targeting today. It is very important in a strike mission and is a very effective system, so we are accelerating its development.

[Slide deleted.]

NAVAL STRATEGY

The last slide is a summary of our naval strategy, the end result being war termination without use of nuclear weapons. A large portion of that derives from our maritime strategy which says there is an opportunity to provide the President with a nonnuclear option to put at risk their nuclear force. Whether you use it, under what circumstances, how you play that game, all is another matter. But we are very conscious of the fact that we can make a difference in the outcome of war without the use of nuclear weapons.

We understand their weaknesses. We know what they are, and we go for them. We go for the jugular on those weaknesses.

It is an aggressive operation vice defensive. We talk about defensive, but that is the national posture. Our feeling is that an aggressive defense, if you will, characterized by forward movement, early deployment of forces, aggressiveness on the part of our ships, is the greatest deterrent that we can have. And the Soviets really understand that. We can get their attention with that concept.

The forward areas on all three flanks of the homeland are extremely important. They are every bit as important to the Soviet Union as Central Europe. That is extremely important to know. They are going to continue to put one-third of their entire military in Northeast Asia, where they have them today—and this is a very fine military force. The best and the largest of their fleets are in the Northeast Asian area and Northwest Pacific.

Our operations are going to be sequential. We are going to perform traditional naval missions in addition to the global war strategy. This takes in all levels of conflict we see in the world today, and we have to have the capability to deal with those.

But we have some shortfalls in our strategy, and those are covered in the next slide.

[Slide deleted.]

This is critical to us and it is paying off more every day, what the Congress has done to help us get our feet back on the ground. We need the new design SSN to be able to continue to outdo the Soviets who, as I said, have 15 SSN's and SSGN's surrounding the battlegroup today as we conduct the amphibious landing up in northern Norway. We know how to get inside there and find them, trail them, and kill them. But we cannot keep doing that forever without getting into the next generation of SSN. The new design surface combatant, the DDG-51 with vertical launched Tomahawk, will be able to strike ashore and improve our power at sea. It provides a tremendous capability in anti-air warfare and suitable capability in other areas to support the forces that she will be serving with; underway replenishment groups, surface action groups, and amphibious support as well as carrier battlegroup support.

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We have upgraded our medium attack aircraft, the A-6E/F. It is very important to get into the modern age, to get the commonality, to get the digital systems such as we have on the F-18 transition over here.

[Deleted.]

The towed arrays, an SQR-19's, are extremely important. I talked about those. I would accelerate the low frequency end of that array, which is critical as the Soviets get quieter.

STANDOFF WEAPONS

Everything we see drives us toward more standoff weaponry. We can have survivable aircraft if we can standoff, but we don't have to have excessive range to standoff. We know how to work the tactics, providing we don't have to go right in overhead a la World War II.

The Air Force and allied AAW support is extremely important. We have an aggressive program worldwide, and we are going to be great supporters of AWACS, land-based tankers, and our interface with the F-15 and F-16 in a land battle. We are going to be in the same area, the littoral nations, and we are working very closely with them to insure that we have the best possible operational interface.

And we have C³ interoperability with not only our sister services, but all allies, but it is not good enough yet. We need to improve that. We have a lot of resources devoted to that.

I personally am trying to help our allies and encourage them to improve their C³ interoperability. That is critical. I have just sent some equipment to Japan to help do that.

Senator COHEN. Admiral, thank you very much for that overview, and Secretary Lehman, thank you very much.

I will take about a 10-minute break. Otherwise I will have a shortfall on constituent support back home. I have some people who have been waiting outside for me for half an hour. I will take about 10 minutes. Then I would like to go into another level of classification, to perhaps address a couple of questions to Secretary Lehman and Admiral Watkins.

We will stand in recess for about 10 minutes.

[A brief recess was taken.]

[An off-the-record compartmentalized briefing followed:]

Senator COHEN. Gentlemen, thank you all very much for your appearance here today and for your briefing.

[Subsequent to the hearing, the following questions were submitted to the witnesses to be answered for the hearing record:]

QUESTIONS SUBMITTED BY SENATOR DAN QUAYLE, ANSWERS SUPPLIED BY ADM. JAMES D. WATKINS

E-2C

Senator QUAYLE. As I understand it, one of the top priorities of our naval strategy is to protect the U.S. fleet from Soviet Backfire bombers and cruise missiles. Are you comfortable with the Navy's current capabilities for surveillance and early warning to the fleet?

Admiral WATKINS. Soviet Backfire bombers and cruise missiles constitute a threat which our forces must be able to counter successfully in order to carry out assigned missions. Current surveillance systems support fleet long range early warning re-

quirements to counter Badger and Backfire bombers and cruise missiles. There are various wide area surveillance and warning sensors available to the fleet, including national sensors and USAF and NATO land assets. When combined with organic battle group assets, they provide sufficient depth in wide area surveillance and warning to the fleet.

Senator QUAYLE. How does the E-2C aircraft fit into your mission of early warning against cruise missiles and hostile aircraft?

Admiral WATKINS. We use the E-2C to provide long range detections and electronic signals intercept of both air and surface launch platforms and anti-ship cruise missiles beyond the battle group's surface radar horizon. The E-2C's early warning capabilities are used with other horizon extension systems such as the EA-3B, the EP-3, land based USAF and NATO E-3A AWACS aircraft and the surface picket units, to provide an integrated and well balanced fleet early warning system.

We also use the E-2C to vector fighter interceptors and coordinate employment of countermeasures against hostile aircraft at the extreme reaches of the outer air battle and direct strikes against surface cruise missile capable ships before they are able to launch their missiles. Once anti-ship cruise missiles are launched from either air or surface platforms, the E-2C can detect and track threats beyond the surface radar horizon and provide track information to other units which would concentrate surface to air missiles against the threat.

Senator QUAYLE. I understand that the E-2C is the Navy's only carrier-based early warning aircraft in the inventory. Do you have plans to expand the existing fleet of E-2C's and expand their use as our fleet becomes more and more vulnerable to Soviet cruise missiles?

Admiral WATKINS. First, I would take issue with the statement that "our fleet becomes more and more vulnerable to Soviet cruise missiles". As I indicated above, we are continuing to improve our wide area surveillance systems in order to detect cruise missile launch platforms at longer ranges. We have a series of improvements across the spectrum of detection, targeting, destruction, and deception which allows us to keep pace with or exceed the pace of Soviet cruise missile developments. Regarding the E-2C, we plan to procure sufficient E-2C aircraft to achieve an all E-2C force by 1988. We have 74 E-2C's now and need a force level of 100 to equip four fleet squadrons, two training squadrons, and two reserve squadrons. We have completed an Air Wing Composition Study and are considering expansion of the existing four plane E-2C squadron to five planes to provide the air wing with greater surveillance and multiple mission assignment capability. We expect to address this plan in the FY 1986 budget.

E-2C EARLY WARNING INVENTORY

Senator QUAYLE. I understand that the E-2C is the Navy's only carrier-based early warning aircraft in the inventory. Do you have plans to expand the existing fleet of E-2C's and expand their use as our fleet becomes more vulnerable to Soviet missiles?

Admiral WATKINS. The Navy's stated objective is to procure [deleted] E-2C aircraft and to achieve an all E-2C force by 1988. This will provide E-2C's for 14 fleet squadrons, 2 training squadrons, and the Navy's two reserve E-2 squadrons. The Navy has recently completed an Air Wing Composition Study which recommends the present 4 plane E-2C squadron expand to 5 planes. The fifth E-2C provides [deleted]. The procurement implications of this study will be addressed in the fiscal year 1986 budget. While the E-2C is the Navy's only Early Warning Aircraft, planned improvements to its weapon system and engine will ensure that it remains capable of countering the projected threat through the 1990's.

U.S. NAVAL STRATEGY

Senator QUAYLE. How satisfied are you today with the Navy's ability to support U.S. forces in keeping open the Strait of Hormuz? Do you see any major limitations on the U.S. being able to respond effectively?

Admiral WATKINS. [Deleted.]

SOVIET NAVAL THREAT

Senator QUAYLE. What would you characterize as the two or three most significant developments in the Soviet navy over the last decade? What new threats out into the future pose the most serious threats to our fleet?

Admiral WATKINS. The three most significant developments of the past decade are:

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Long-range, submarine launched ballistic missiles armed with MIRV's aboard DELTA and TYPHOON Class SSBN's.

[Deleted] submarines—*Typhoon*, *Oscar*, *Mike* and *Sierra*—which are [deleted] and [deleted] than their predecessors.

Improvements in fleet air defense, including the deployment of long range, area AAW missile systems and Forger VTOL aircraft aboard *Kiev* Class carriers.

In the future, we anticipate the most serious new threats will be in the area of: Undersea Warfare. Soviet efforts to quiet their submarines will continue and could result in erosion of our acoustic advantage. Additionally, Soviet ASW improvements in platforms, sensors and tactics could further diminish our advantage.

The use of space for surveillance and command and control. Improved systems and better networking will provide real-time locating and targeting data to major naval forces and provide Moscow the means to coordinate closely the employment of their forces.

Sea-based air power. The Soviets are building their first conventional take-off and landing aircraft carrier. It will embark modern, high performance aircraft, capable of carrying out offensive and defensive missions much more effectively than the current Forger VTOL.

ALPHA CLASS SUBMARINE THREAT

Senator QUAYLE. Much has been made of the new Soviet *Alpha*-class sub and its titanium hull. I know Jack Anderson has written that the sub is "one of the noisiest vessels ever to churn the ocean". Still, I am told the sub may be able to dive deeper and run faster than some of our subs. Can you give us your assessment of the threat posed by the *Alpha*-class ship and what we are doing to counter it?

Admiral WATKINS. The Soviet *Alpha* Class submarine enjoys speed and depth advantages over our SSN's, but these advantages are offset by the high acoustic noise level it generates and the inefficiency of its sensors at high speed. It is a fast, deep diving, special purpose submarine that does not have sufficient warfighting capability for a long duration engagement. Although we possess the technology to build submarines capable of very high speeds, we have emphasized the tactical advantage of stealth and devoted considerable technical efforts to quieting. Our modern SSN 688 is designed for covertness, endurance, mobility and reliability and is tactically superior to the *Alpha*. Our Improved SSN 688 Class builds on this superiority and will maintain it through the 1990's with improvements in quieting and warfighting capabilities designed to counter Soviet advances in quieting, sensors and weapons. These Soviet advances are more disturbing than the *Alpha*'s speed and depth advantages and dictate the development of our new Design SSN to maintain our superiority in the decade beginning 1995.

QUESTIONS SUBMITTED BY SENATOR SAM NUNN, ANSWERS SUPPLIED BY HON. JOHN LEHMAN, SECRETARY OF THE NAVY; AND ADM. JAMES D. WATKINS, CHIEF OF NAVAL OPERATIONS

CARRIER AIRCRAFT STUDY

Senator NUNN. Do you expect to operate multiple-carrier battle groups in which the carriers would have different aircraft loadings? What is the underlying philosophy, and how far can such specialization be carried?

Secretary LEHMAN. We already operate multi-carrier battle groups in which carrier air wings (CVW's) with different compositions are embarked. USS CORAL SEA and USS MIDWAY carry F-4's since they can't accommodate F-14 aircraft. We sometimes structure CVW's for specific missions and threat scenarios and some CVW's transition as a new type of aircraft is introduced. We need to continually refine the composition and employment of CVBG's and CVW's for the different missions and threat scenarios we may face. Specialized CVW's have advantages and we are learning effectiveness and cost implications by deploying them. We're not sure exactly how far specialization can be taken and still increase effectiveness. We will continue to employ different aircraft mixes to see whether certain changes would enhance our capabilities.

GRENADA—LESSONS LEARNED

Senator NUNN. The Navy did an excellent job in studying the experiences of the United Kingdom in the Falklands and preparing an extensive document and presentation on the "Lessons of the Falklands." I am just wondering if the Navy is prepar-

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ing any similar document on the "Lessons of Grenada" which our forces were directly involved in. In particular, I am interested in how the various service components worked together and the relationship of the JCS to the planning done at CINCLANT, a major naval command. I am also interested in the intelligence aspects. Is the Navy doing any formal analysis of Grenada and when can the committee expect any formal written "lessons learned?"

Secretary LEHMAN. We are analyzing Operation Urgent Fury to develop Lessons Learned which may be useful in improving the capabilities of the Navy and Marine Corps. We intend to publish a formal, classified report in early summer of this year and will forward a copy of the Navy report for your review.

CARRIER AIRCRAFT STUDY

Senator NUNN. The Navy is experimenting with several new aircraft mixes on various carriers. Would you supply for the record the following information.

What are the objectives or hypotheses being tested in each variant?

What information or data will be evaluated?

When will the evaluation be completed?

Secretary LEHMAN. We are analyzing to determine which carrier air wing (CVW) mix of aircraft will provide the optimum flexibility and capability for different missions and threat scenarios. We are gathering operational data, including mission effectiveness in each of the primary warfare areas, as well as maintenance and availability rates. For instance, we are examining the effectiveness of a CVW with just medium attack aircraft (A-6) for strike missions. Other CVW's will test various mixes of strike fighters (F/A-18) and air superiority fighters (F-14). This process is part of a continuing evolution to have the most capable force at sea to meet ever-changing commitments and threats, while at the same time finding the lowest cost ways to deploy an effective air wing.

SUBMARINE PROGRAM

Senator NUNN. In terms of reaching the Navy goal of 100 attack submarines, what difference does it make as to whether three or four 688's are funded in fiscal year 1985 and in the next few years ahead.

Admiral WATKINS. We cannot achieve and maintain a force level of 100 first line nuclear attack submarines if only three SSNs per year are authorized. At least 100 SSNs are needed to give us reasonable assurance that we could prevail in conflict with the Soviets.

I would also like to point out that the Improved 688s requested in fiscal year 1985 are far more capable than our earlier SSNs. Since we would rely on our qualitative advantage in any conflict with the Soviets, it is crucial that our SSN force include as many of these highly capable ships as possible.

Senator NUNN. Will the 688's now being requested be capable of meeting the Soviet threat and could you briefly describe any planned component improvements?

Admiral WATKINS. Yes sir. The improved SSN 688s will have a clear advantage over any submarine or surface threat introduced by the Soviets in the next ten years and should be highly effective against the Soviets for the rest of the century.

The improved SSN 688 will be far more effective in mission performance than older SSN 688s because of quieting modifications and increases in sensor and weapons capabilities. Major improvements include:

[Deleted.]

Vertical launch system [deleted].

Arctic modifications [deleted].

Mining modifications [deleted].

Sensor and combat system upgrades including an advanced sonar and combat system (SUBACS).

Senator NUNN. Will all four of the submarines in this budget be the improved version of the 688?

Admiral WATKINS. Yes sir.

Senator NUNN. Discuss some of the older classes of U.S. attack submarines which will be only marginally capable of meeting the threat of the 1990's.

Admiral WATKINS. In the year 1990, we will still have in service over 50 attack submarines built prior to the introduction of the *Los Angeles* class. While these ships will be fully capable of opposing the 1960's and early 1970's vintage Soviet submarines, they will be only marginally capable of opposing Soviet attack submarines introduced since the mid-70's.

In the last ten years the Soviets have developed twelve new classes of submarines. Between the introductions of the *Los Angeles* Class in 1976 and our New Design

Attack Submarine in 1995, the Soviets will put fourteen new classes of attack submarines to sea. Each of these classes will incorporate new capabilities thus making our older ships less capable of opposing the Soviet fleet. Quite clearly, the rate at which the Soviet attack submarine force is being modernized is unprecedented and represents a growing threat to our maritime superiority.

For this reason, the Improved 688 is vital to our interests. Each Improved 688 will give us a significantly improved capability for dealing with the Soviet submarine force of today and that projected for the immediate future. As our older ships lose their advantage against the more modern Soviet submarines, it is essential that we introduce new submarines with the warfighting capability to prevail.

Senator NUNN. Is the issue of procurement of four submarines in fiscal year 1985 related to the new submarine for which there are R&D funds in this budget? What is the linkage if any, between the new submarine and the question of whether there should be three or four 688 attack submarines in the fiscal year 1985 budget?

Admiral WATKINS. The number of SSN 688s authorized in fiscal year 1985 is not linked to the R&D work. We must build up our SSN force level now with Improved SSN 688s, but still be looking to the future when a new SSN design is needed.

Senator NUNN. The stated Navy Policy is to maintain two shipyards for producing attack submarines. In terms of the attack submarine industrial base, if this program is to be maintained at three per year, what is your assessment as to the effect on the industrial base if there is an average of only 1.5 submarines per yard per year?

Admiral WATKINS. Maintaining an industrial base for attack submarine construction requires a workload that will adequately maintain an acceptable experience level of all shipbuilding personnel, transfer that experience to new personnel through training and adequately utilize shipbuilding equipment and facilities. In terms of shipbuilding experience and training, the industrial base for submarine construction in the two shipyards would be maintained with the authorization of only 1.5 submarines per yard per year, however, both shipyards would be operating well below capacity, thereby increasing the unit cost of building submarines.

Shipbuilding capacity in both shipyards is, in fact, underutilized and has been for the last several years. Nevertheless, each shipyard is improving its facilities for submarine construction to implement modern shipbuilding techniques and to enhance producibility. Electric Boat Division has, over the past several years, significantly upgraded its production equipment and methods resulting in an increase in capacity and improved productivity. Newport News Shipbuilding plans to implement similar improvements in its shipbuilding capabilities in the near future. As each shipyard modernizes its industrial plant, the imbalance between shipbuilding capacity and utilization of that capacity will grow leading to manning reductions. The industrial base will be maintained, but without full realization of the producibility and productivity improvements.

Senator NUNN. In addition to the shipyard, is there a requirement for a specialized base for supply of naval nuclear power equipment? In terms of the naval nuclear power industrial base, what is your assessment of the impact of limiting 688 construction to three rather than four per year?

Admiral WATKINS. There is a requirement for a specialized base for supply of naval nuclear propulsion equipment as well as for shipyard industrial facilities. This nuclear industrial base is currently underutilized and would remain so with a three per year building program. At the projected shipbuilding of our SSNs and one SSNB per year there is only enough business to sustain two suppliers of major items of heavy equipment with the two suppliers operating in the neighborhood of 50 percent capacity. With a limited base such as this it is difficult to maintain competition between the two suppliers. Reducing the proposed program to 3 SSNs per year would exacerbate the present condition of underutilized capacity leading to less efficient production and higher unit costs.

Senator NUNN. What connection do you draw between the submarine construction rates funded in the budgets of the last seven years and this request for four SSNs in fiscal year 1985?

Admiral WATKINS. For the past seven years, the attack submarine authorization rate has been only 1.9 per year which is far too low to reach the goal of 100 attack submarines by 1990. Indeed this building rate would not even sustain a force level of 60 SSNs. In order to meet the force level goal by 1990, four SSN-688 Class submarines must be authorized in fiscal year 1985. Any number less than four SSNs in fiscal year 1985 would delay achieving the 100 SSN force level.

In 1978 and 1979 only one SSN was authorized each year. The authorizations increased to two per year for the next four years and last year the Congress author-

ized three SSN-688's for construction. This upward trend must be continued into fiscal year 1985 if we are to achieve our goals.

Another very important consideration is that the submarines to be authorized in fiscal year 1985 will be significantly improved over earlier ships of the class. Major quieting and mining modifications, incorporation of the Advanced Combat System (SUBACS), enhancement of arctic warfare capabilities and incorporation of the Vertical Launch System markedly improved the warfighting capabilities of the class. It is very important that we accelerate fleet introduction of SSN-688s with the improvements if we are to satisfactorily counter the threat of the 1990s.

Senator NUNN. Will the Navy be able to sustain a four per year attack submarine production if the real growth in the Navy budget for the FDYP is less than planned, say on the order of 3-5 percent average real growth?

Admiral WATKINS. Both Secretary Lehman and I are committed to a four SSN per year building program even at lower rates of real growth in the navy budget.

Senator NUNN. Last October in the Appropriations cycle, Senator Cohen and I worked to include long-lead funds to preserve the options for four submarines in the fiscal year 1985 program which you have now requested.

How important is the number four, and is there any link between the need for three or four submarines in the fiscal year 1985 budget and the new design attack submarine?

Admiral WATKINS. The number four is very important. We must build four SSNs per year to achieve our SSN force level objective of 100, which is the minimum number needed to carry out our missions.

The Soviet Union currently outnumbers the United States in attack submarines by a ratio of 3 to 1 and will maintain that ratio by building three times as many submarines as we do. Moreover, the Soviets are introducing new classes of submarines at a rate nearly seven times greater than the United States. In short, the Soviets are rapidly modernizing their submarine force by building a large number of new and more capable ships.

To maintain undersea superiority, we must keep our qualitative edge. Our Improved 688 Class submarines, such as the four in the fiscal year 1985 budget, must be introduced to the fleet as rapidly as possible—and in numbers—to redress the shrinking margin of supremacy for our attack submarine force.

There is a limit, of course, to the improvements we can incorporate into the 688 Class. A New Design SSN must be developed. The New Design SSN is the next step in the process of modernizing our force at a rate adequate to maintain our margin of undersea superiority and address the projected threat from the Soviet fleet in the 1995 time frame.

CARRIER BATTLE GROUP ESCORTS

Senator NUNN. When carriers operate in multiple formations, do the battle groups require the same ratio of escorts as when operating independently?

Admiral WATKINS. The force structure of individual CVBG's is not affected by employing them in a multiple CVBG force. Although dictated by the tactical situation, the special disposition of multiple CVBG forces is generally such that there is a physical expansion of coverage requirements, rather than an overlap. Thus multiple CVBG's require the same ratio of accompanying surface combatants and submarines as single CVBG's to meet the demands of expanded battle space. The improved capability which we achieve is a function of the aggregate of all the multiple CVBG forces.

NAVY BUDGETS

Senator NUNN. As these budgets are inevitably adjusted downwards, what priority do you place on the submarine portion and anti-submarine warfare part of the Navy budget?

Admiral WATKINS. All of our forces are mutually supportive and our budget submission reflects a balanced approach to meeting all our requirements. Any downward adjustments must also reflect this balance or run the risk of destroying the mutually supportive nature of our force. For this reason, it is very difficult to set priorities among the surface, sub-surface, and airborne components of our defense requirements. Our strategic submarines are a vital part of this nation's deterrence strategy. Our tactical submarines and our Anti-Submarine Warfare forces contribute to the total war fighting capability of our fleet and are essential to our ability to keep open sea lines of communication in time of war.

Senator NUNN. What percentage real growth will it require in the Navy budgets this year and for the next 4 fiscal years to execute the Navy's program?

Admiral WATKINS. We need the real program growth of 12.7 percent contained in the fiscal year 1985 budget for the Department of the Navy. Assuming approval of the fiscal year 1985 budget as requested, the projected real program growth amounts for the DOD (9.2 percent in fiscal 1986, 3.5 percent in fiscal year 1987, 3.8 percent in fiscal year 1988, and 3.9 percent in fiscal year 1989) will enable the Secretary of Defense to allocate to the Department of the Navy sufficient resources to meet our 5 year plans and achieve the required force levels.

CARRIER BATTLE GROUPS (CVBG)

Senator NUNN. If carriers are primarily going to fight in groups in wartime, does this mean 15 carriers no longer equal a 15-carrier battle group Navy?

Admiral WATKINS. Combining CVBG's is a matter of tactical employment instead of force composition. Fifteen Carrier Battle Groups (CVBG) are the minimum required to accomplish our warfighting maritime strategy and maintain our flexibility in peacetime. Combining groups is sometimes prudent in a high threat environment to reduce risk and increase the probability of success while projecting power ashore and providing mutual self defense.

Senator NUNN. Recently, we see two CVBG's operating together such as off Lebanon. You talk in your briefings about multiple carriers operating together. Are the force objectives changing?

Admiral WATKINS. Our force objective of fifteen deployable carrier battle groups (CVBG) has not changed, but we are continually refining the employment strategy and tactical use of CVBG's. Based on joint exercises and operational experience in the Indian Ocean, Eastern Mediterranean, and Western Pacific, we have found that two CVBG's operating together complement each other's capabilities and their combined capability is much greater than two CVBG's operating singly. To increase our chances of success and reduce risk in establishing control of the sea in those areas where U.S. interests are vital, we have combined CVBG's into a carrier battle force.

Senator NUNN. Have you changed the definition of what constitutes a carrier battle group? I recall that it used to mean one carrier and its escorts.

Admiral WATKINS. No, a carrier battle group (CVBG) is comprised of the carrier and the surface warships and submarines required for its direct support and is tailored to a given threat and mission scenario. The classes of ships and the mix will also change as our force composition changes and more capable ships such as CG-47 and DDG 51 take the place of our aging DDG-2/DDG-37 Class ships. Multiple CVBG's will retain all of the support ships that each had individually.

SOVIET FORCES IN FAR EAST

Senator NUNN. What capabilities would be needed to suggest to the Soviets, primarily through deterrence, that their forces in the Far East might be "isolated" in the context of a NATO scenario?

Admiral WATKINS. Powerful strike forces in the Far East (e.g. aircraft-carriers, cruise missile platforms, and attack submarines) force the Soviets to commit and maintain forces there. The Soviets measure the threat we present and attempt to counter it, reducing the forces they can commit to an attack against NATO and thereby helping to deter such action. Our forward deployed forces also assure our allies—Korea and Japan—of our support and could ensure that other regional powers, (primarily the Peoples Republic of China) maintain a posture that is at least neutral.

Senator NUNN. What capability does the Navy have, or planned, to contribute to a mission—if required—to tie down Soviet forces in the Far East?

Admiral WATKINS. Our Carrier Battle Groups (CVBG) give us the mobility and capability we need to exert pressure from the sea on the geographic area of the Soviet Union most vulnerable to attack. The Soviets would likely respond with their Pacific Fleet Naval Forces and their land and air forces. This pressure would deny the Soviets a [deleted]. We need strong, offensive forces in the form of CVBG's, cruise missile platforms, and attack submarines as well as the support of our sister services and allies to accomplish this.

Senator COHEN. The subcommittee is now adjourned.

[Whereupon, at 5:08 p.m., the subcommittee adjourned, to reconvene upon the call of the Chair.]

Mersheimer, John J. THE MARTIME STRATEGY AND CONVENTIONAL DETERRENCE. Prepared for the May Conference on "Maritime Strategy: Issues and Perspective." Center for Naval Warfare Studies, U.S. Naval War College, May 1985: pp.1-29. Reproduced by permission of author for use in the courses of the National Defense University.

THE MARITIME STRATEGY AND CONVENTIONAL DETERRENCE

by

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April 1985

Prepared for delivery to the May Conference on "Maritime Strategy: Issues and Perspectives", Center for Naval Warfare Studies, U.S. Naval War College, Newport, RI, 15-17 May 1985.

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THE MARITIME STRATEGY AND CONVENTIONAL DETERRENCE

One of the principal elements in the Reagan Administration's defense build-up is the 600 ship navy. This force is being developed largely for the purpose of implementing "the maritime strategy," which is the navy's blueprint for fighting a global conventional war against the Soviet Union. Considerable controversy has surrounded the naval build-up and especially the attendant strategy.

The controversy over the maritime strategy has largely revolved around the issue of the navy's relationship to the NATO commitment. The debate has involved both grand strategic and strategic issues. Many critics see the navy as advocating a move away from our traditional grand strategy, which has assigned primary importance to the NATO commitment. The navy is sometimes accused of wanting to abandon our European allies and instead pursue a unilateralist policy. Controversy has abounded at the strategic level as well. Here, the NATO commitment is taken as given, and the debate focuses on how the navy will be employed in a European conventional war. One point of contention is whether the navy should conduct offensive operations against the Soviet Union's northern fleet. The role of aircraft carriers is another controversial subject.

These controversies notwithstanding, the commitment to Europe remains firmly entrenched as the United States' principal foreign policy commitment. The paramount American objective in that all-important theater is to deter a Warsaw Pact attack on the Central Front. The aim of this essay is to determine what

impact the maritime strategy will have on conventional deterrence in Europe. [1]

Much of the controversy surrounding the maritime strategy undoubtedly derives from the fact that it is difficult to determine exactly what is the maritime strategy. The navy has not spoken with one voice on this subject and moreover, the pronouncements of its leading spokesmen have usually not been very precise. It is not uncommon to hear defense analysts complain about how difficult it is to ascertain what is navy strategy. It is also not uncommon for naval officers to acknowledge this problem. This lack of clarity has resulted in a situation where there are a variety of views concerning what is the maritime strategy. Fortunately, the navy has recently begun to clarify its position on a number of important points relating to that strategy.[2] Thus, it is possible to determine how the navy will be employed in a European conflict, and in turn, how the navy will influence the prospects for conventional deterrence.

The principal argument of this essay is that the navy, operating in accordance with the maritime strategy, is not likely to have much influence on a Soviet decision to start a conventional war in Europe. Conventional deterrence, in all probability, will not be affected in any significant way by the maritime strategy. This argument should not be interpreted to mean that the United States does not need a strong navy for a possible European war. It does. Fighting a war and detering a war, however, are not the same thing.

I. THE MARITIME STRATEGY

The navy is faced with four broad missions: 1) nuclear deterrence, 2) peacetime presence, 3) direct intervention in the third world, and 4) large-scale conventional war with the Soviet Union. The first three missions, although certainly important, are not relevant here. The maritime strategy is concerned with the fourth mission-- how the navy views its role in a global conventional war with the Soviet Union.

To gain a firm understanding of the maritime strategy, it is necessary to consider the navy's position on certain questions about American grand strategy as well as its answers to some important questions about military strategy. There are two fundamental questions about grand strategy which must be examined.[3] First, is the navy bent on greatly reducing the scope of or even abandoning the American commitment to defend Europe and pursuing instead a unilateral strategy? Some defense experts have argued that our European allies have failed to develop the forces necessary to offset the Soviet threat and that, moreover, the principal threats to American national interest lie outside of Europe. The United States, so the argument goes, should concentrate on these threats instead of wasting precious resources on a hopeless cause like NATO. The highly visible controversy between Robert Komer and a number of navy spokesmen has centered on this very issue. Komer, a staunch supporter of the NATO commitment, defends what he terms a coalition approach to grand strategy, while harshly criticizing those who advocate a unilateral or blue water strategy.

Second, assuming NATO remains an important mission for the navy, does that service's strategy call for giving first priority to the NATO contingency in a global conflict and pursuing holding operations in other theaters, or does it mandate fighting full-scale engagements across the globe? The Reagan Administration initially went to some lengths to criticize the Carter Administration for over-emphasizing the NATO commitment and maintained that it would instead pursue a global strategy. The implication was that NATO would not enjoy any special status. Concomitantly, there was much talk about developing the capability to fight simultaneously in different theaters instead of pursuing the time-honored strategy of dealing sequentially with the threats in the various theaters. This policy nicely complimented the Reagan Administration's early emphasis on horizontal escalation. The navy was seen as a key actor, if not the key actor, in the effort to implement this global strategy. There has been, not surprisingly, much criticism of the Administration's emphasis on simultaneous contingencies and horizontal escalation. [4]

How does the present maritime strategy respond to these two questions? The answer appears to be quite straightforward. The navy rejects unilateralism and accepts the central importance of the NATO commitment. Furthermore, the navy rejects the notion that it can simultaneously fight full-scale conflicts in different theaters and instead accepts the traditional strategy of dealing first with its NATO responsibilities. Evidence of these views is found in recent congressional testimony by

Secretary of the Navy John Lehman. He told the Senate Armed Services Committee:

We are deployed throughout NATO. Our fleet and air forces and ground forces are roughly where our vital interests are. We are forward deployed, and that development is fundamentally based on coalition approaches to all of our threats, not go-it-alone approaches, as an organizing framework.

.....

As you will see, the problem we have to deal with is a global problem. We have to deal with its elements sequentially. We cannot deal simultaneously with every theater.

The conventional forces are the critical mass below the strategic umbrella. These forces must be balanced, land-based and sea-based, and the allies are sine qua non. We simply cannot approach any strategy without assuming very substantial allied participation, and a forward peacetime posture. [5]

This testimony leaves little doubt that the maritime strategy assigns paramount importance to the NATO commitment.

Let us turn to the realm of military strategy and focus on the particular military missions that the navy might pursue in support of the NATO commitment. There are three such missions: defensive sea control, offensive sea control, and power projection. Sea control means maintaining the sea lines of communication (SLOCs) between Europe and the United States. The principal threat to these SLOCs is the Soviet's attack submarine force based at Murmansk on the Kola Peninsula. Defensive sea control calls for sealing off that threat largely by constructing barrier defenses and formidable ASW assets to use against those

attack submarines that penetrate the barriers. Offensive sea control, on the other hand, emphasizes those same tasks identified with defensive sea control, but also calls for direct attacks on the bases from which those submarines operate. This involves moving into the Norwegian and Barents Seas and attacking the Kola Peninsula. Defensive sea control is based on the assumption that it is best to wait for the adversary to come to you, while offensive sea control is predicated on the belief that it is best to go directly to the source of the problem and eliminate it.

The final mission, power projection, calls for direct strikes on the enemy's homeland. This is often done in support of amphibious operations. This mission is actually quite similar to offensive sea control since both involve the use of naval air and naval gun fire to strike directly at the enemy's homeland. There is, however, no serious discussion of large-scale amphibious operations against the Soviet homeland. The navy's interest in projecting power is largely in the context of offensive sea control. In short, the debate about how the navy should be used to support NATO revolves around the choice between the defensive and offensive sea control missions.

The Carter Administration favored defensive sea control. The Reagan Administration, on the other hand, has maintained from the start that defensive sea control is not an acceptable option and that the only way to deal with the Soviet threat to the SLOCs is to pursue offensive operations. John Lehman recently explained navy thinking on this matter:

We have to move up north of the GIUK gap. We have to control the Norwegian Sea and force them back into the defensive further north, under the ice, to use their attack subs to protect their nuclear missile submarines, to use their attack subs to protect the Kola and the Murmansk coasts, and similarly their Pacific Coast as well.

If we try to draw a "cordon sanitaire" and declare that we are not going to go west of such and such a parallel, then, obviously, they have the capability to use their attack subs offensively against our SLOCs.[6]

Thus, it is clear that offensive sea control is at the heart of the maritime strategy. Nevertheless, there has been some debate about how these offensive operations should be conducted. There is little disagreement about the dimensions of the threat. The key naval base for the Soviet's northern fleet is Murmansk, located on the Kola Peninsula, which will be heavily defended by land-based aircraft. There is also general agreement that the Barents Sea and at least the upper reaches of the Norwegian Sea will be teeming with Soviet submarines and some portion of the Northern Fleet's surface forces.

Considerable attention has been focused on two different offensive strategies for eliminating this threat. The first, identified with John Lehman, calls for immediately moving aircraft carriers into the upper reaches of the Norwegian Sea and using carrier-based aircraft against targets on the Kola Peninsula. The second strategy, identified with the top admirals in the navy, calls for keeping the carriers out of harm's way while American submarines attempt to rollback Soviet naval forces

deployed in the Norwegian and Barents Seas. Only after that task is completed are the carriers moved forward so that they can strike at Murmansk and other land targets. John Lehman told the Senate Armed Services Committee in March 1984 that he has "never intended to steam carriers up to strike the Soviet Union in the early phases of the war." [7] He told the committee that he accepts instead the more prudent second strategy usually identified with the admirals. Thus, it seems reasonable to conclude that the rollback strategy represents the official position.

It is now possible to outline the main components of the maritime strategy. The first tenet is that although the United States has global interests (Europe, Northeast Asia, Persian Gulf, Central America, other third world areas) which must be supported by a powerful navy, NATO will receive first priority in a conflict with the Soviet Union. Sequentialism is the order of the day - the United States will pursue a "Europe first" policy as it did in World War II. The second tenet is that the navy's principal goal in a European war will be sea control. The aim will be to maintain the SLOCs in the Atlantic. The third tenet is that protecting those SLOCs mandates the pursuit of offensive operations. That offensive will be conducted in two phases. In the initial phase, submarines will be used to roll back Soviet naval forces in the Norwegian and Barents Seas. Then, carriers will be brought forward to strike at the Kola Peninsula.

II. CONVENTIONAL DETERRENCE

When two large armored armies directly face each other in a

crisis, under what conditions does deterrence fail? [8] What are the circumstances, in other words, which would lead one side to go to war? This question lies at the heart of conventional deterrence. It is an especially relevant question for American defense analysts because of the situation in Central Europe, where NATO and Warsaw Pact armies stand opposite one another.

Deterrence, at its root, is a function of both political and military considerations. Decision-makers must weigh the expected political consequences of military action against the military risks and costs of going to war. In a crisis, political considerations are likely to place significant pressure on decision-makers to go to war. Generally, deterrence is most likely to hold when the risks and costs of military action are very high.

Cost in a conventional war is largely a function of how quickly one achieves his objectives on the battlefield. Short wars are more desirable than lengthy ones because the former generally entails lower costs. Appropriately, war is most likely to start when the potential attacker believes that he can score a quick and decisive victory. Deterrence is best served when decision-makers think that war will be a ghastly and destructive experience, a situation that results from protracted conventional war. Thus, the objective of the deterrer is to decrease his opponent's probability of gaining a quick and decisive victory and instead to increase the likelihood that a protracted war will result. In other words, one aims to increase the risks of going to war by making the potential attacker think that it is very

likely he will end up in a long and costly war. Thus, we must concern ourselves with determining the conditions under which decision-makers are likely to conclude that they can quickly achieve their objectives on the battlefield. It will, of course, also be necessary to determine when decision-makers are likely to reach the opposite conclusion.

Conventional deterrence is directly related to military strategy, or more specifically, to the matter of how a nation's armed forces are employed to achieve specific battlefield objectives. Decision-makers are primarily concerned with determining how their forces are going to be used on the battlefield and with probable outcomes when the attacking forces meet the defending forces. In other words, decision-makers attempt to foresee the nature of the war. Does the plan of attack - the proposed strategy - promise success at a reasonable cost? Such considerations lie at the heart of the decision-making process.

Basically, decision-makers are faced with three distinct and narrowly defined strategies: the attrition, the blitzkrieg, and the limited aims strategies. With the attrition strategy, the attacker seeks to defeat his opponent decisively by engaging in numerous battles of annihilation, or set-piece battles. A successful offensive, like a steamroller, literally pushes the defender back along a broad front. Rout and retreat alternate, eventually wearing down the defense. Little emphasis is placed on achieving the battlefield equivalent of a knock-out punch. Instead, victory follows a series of set-piece battles and is not expected to be quick. The process is protracted, and success

ultimately comes when the defender can no longer continue to fight. It is of course assumed that the defender will weaken before the attacker does. Since there are no shortcuts to victory, an attacker does not shy away from striking at the defender's strong points. Strength is matched against strength.

The blitzkrieg, on the other hand, relies on the mobility and speed inherent in an armored force to defeat an opponent decisively without a series of bloody battles. The remarkable victories achieved by Germany in the early years of World War II, and decades later by the Israelis in the Middle East, show that an opponent can be disarmed without numerous battles of annihilation.

The blitzkrieg is predicated on the assumption that the opponent's army is a large and complex machine that is geared to fighting along a well-established defensive line. In that army's rear lies a vulnerable network, which is comprised of numerous lines of communication (along which supplies as well as information move) and key nodal points at which the various lines intersect. Destruction of this central nervous system is tantamount to destruction of the army and is therefore the principal aim of the attacking forces.

This discussion points up the fact that a blitzkrieg is comprised of essentially two operations: the breakthrough battle, where the attacking forces pierce the defender's forward positions; and the deep strategic penetration, where the attacking forces wreak havoc in the defender's rear. To accomplish the first task, the attacker concentrates his armored

forces at a specific point or two along the defender's front, hoping to achieve an overwhelming force advantage that will allow him to pierce the defender's forward line. Once the breakthrough is accomplished, the attacker seeks to avoid further contact with the defender's main body of forces and instead concentrates on driving as rapidly as possible into the defender's rear, severing lines of communication and destroying key junctures in the defender's command and control network.

With the first two strategies the attacker aims to inflict a decisive defeat on his opponent. The limited aims strategy, in contrast, calls for a less ambitious objective. Specifically, the attacker seeks to gain a portion of the defender's territory. To effect the capture, of course, the attacker must defeat some of the enemy's forces. The principal aim, however, is to capture territory, not to defeat the opponent's army. The key to success for the attacker is the achievement of strategic surprise, which means catching the defender unprepared. The attacker seeks to gain his territorial objectives when the defense is weakest, so that it is necessary to defeat only a limited portion of the defender's forces. Given this emphasis on "the quick land grab," which places a premium on avoiding bloody engagements with the main body of the defender's forces, the choice of battlefield tactics is not as significant a concern as it is with the first two strategies. Instead, success is predicated on the ability of the attacker both to achieve surprise and to overwhelm the defender's forces that are at hand before the defender can mobilize his main forces. After securing his objectives, the attacker shifts from an offensive to a defensive posture and

prepares for a possible counterattack.

Each of the three strategies has different implications for deterrence. The limited aims strategy, in terms of execution, is the least risky and also the least costly of the three because it is the least ambitious strategy and because the attacking forces seek to ~~maintain~~ contact with the defender's forces. Nevertheless, the limited aims strategy is not nearly as commonplace as we might expect. Two factors detract from its appeal. First, modern nation-states show a pronounced preference for decisive victories. As the threat of war grows, pressure builds to find a way "to win the war." Second, there is a real danger that a successful limited attack will evolve into a protracted war - simply because the defender, who has not been decisively defeated, will continue fighting. The same powerful forces that make it so difficult for an attacker to pursue limited objectives serve to increase the likelihood that the defender will not accept a limited defeat. This possibility of a protracted war, when it exists, makes the limited aims strategy a risky course of action. For these reasons, nations prefer to find a way to defeat an opponent quickly and decisively.

The blitzkrieg provides a means to score a rapid and decisive victory. For this reason, there will be great pressure moving a nation's military planners toward a blitzkrieg. Those planners of course will not always reach the conclusion that they can effect a blitzkrieg. There are limits as to how far a nation's military can be pushed. Nevertheless, if a potential attacker believes that he can launch a successful blitzkrieg,

deterrence is very likely to fail. The blitzkrieg is clearly the most desirable of the three strategies and therefore the one most likely to lead to a deterrence failure.

If a potential attacker believes that he can secure a decisive victory only by means of an attrition strategy, deterrence is very likely to obtain. Because of the very high costs and the difficulty of projecting the final outcome in a long war, the attrition strategy is the least desirable of the three and the one most likely to be associated with deterrence success. Liddell Hart, whose views were profoundly influenced by his experience in the Great War, once remarked, "Of what use is decisive victory in battle if we bleed to death as a result of it?" His rhetorical question lays bare the foundation of conventional deterrence.

If a potential attacker cannot effect a blitzkrieg, he will undoubtedly consider employing a limited aims strategy. Despite the lack of real enthusiasm for this strategy, it is an attractive alternative to the attrition strategy. Once the limited aims strategy is deemed worthy of consideration, the key question is: will a limited victory lead to a war of attrition? If the answer is yes, deterrence is likely to obtain; if the answer is no, deterrence is likely to fail. As I noted above, deterrence is best served when the attacker believes that his only alternative is a protracted war: the threat of a war of attrition is the bedrock of conventional deterrence.

What are the implications of this discussion for the European Central Front? Whether or not deterrence obtains in a future crisis will depend, in large part, on whether the Soviets

think that they can launch a successful blitzkrieg. Their aim will be the complete and rapid destruction of NATO's capability to wage war; this objective is clearly reflected in the Soviets' military literature as well as in the organization of their ground forces. The Soviets have no intention of engaging in a lengthy war of attrition, nor is it likely that they would pursue a limited aims strategy. Even if the Soviets were to achieve their objectives, NATO would not be defeated and would still be capable of continuing the war. In fact, it is very likely that the conflict would turn into a war of attrition, an outcome the Soviets certainly want to avoid.

III. THE NAVY AND DETERRENCE ON THE CENTRAL FRONT

To determine what impact the maritime strategy will have on conventional deterrence, it is necessary to determine how the Soviet decision-making calculus is likely to be affected by the maritime strategy. Specifically, how will the navy's planned operations influence the Soviet's prospects of achieving a quick and decisive victory in the land and air battles on the Central Front?in Central Europe? Is the navy capable of reducing Soviet prospects of effecting a blitzkrieg?

To come to grips with this important issue, it is necessary to answer three questions. First, how likely is it that the navy will actually execute the maritime strategy? There is, as will become evident, good reason to think that the navy will not be allowed to pursue offensive operations on the northern flank. Second, assuming that the navy is allowed to strike north, is

success likely? What are the prospects of rolling back the Soviet's Northern Fleet and then launching devastating strikes against the Kola Peninsula? These questions, in essence, deal with the important matter of whether the maritime strategy is even a realizable option. If it appears likely that it is not, then it certainly is not going to have much effect on a Soviet decision to strike in Central Europe. Third, assuming that the navy is fully capable of executing the maritime strategy, what effect will it have on the Central Front? The answers to these questions provide very useful insights for determining what effect the maritime strategy is likely to have on conventional deterrence.

Likelihood of Implementation

Listening to navy spokesmen talk about the maritime strategy, one might think that in a conventional war the navy will axiomatically be turned loose to roll back Soviet naval forces in the Norwegian and Barents Seas. This will not be the case. There will be tremendous pressure on decision-makers in a crisis to hold the navy back. The reason is straightforward: the threat of escalation to nuclear war. [9]

The Barents Sea is the principal sanctuary for Soviet SSBNs. Approximately two-thirds of the Soviet SLBM force is located there. There is, moreover, widespread agreement that the principal mission of the Northern Fleet's SSNs and surface forces is to protect the SSBNs. This area is first and foremost an SSBN bastion. The American navy, in accordance with the dictates of the maritime strategy, seeks to strike into these waters to

eliminate the threat to our SLOCs, not to eliminate Soviet SSBNs. The principal aim is to eliminate the submarine threat so that the Soviets cannot stage another "Battle of the Atlantic." The problem, however, is that striking into the Barents, regardless of intentions, will have the effect of whittling away the Soviet's strategic nuclear forces. The root of the problem is that the Soviets's conventional and nuclear forces in this area are so intertwined that the offensive sea control mission is effectively no different than a strike aimed at the SSBNs.

Elimination of a large portion of the Soviet's SSBN force would undoubtedly lead the Soviets at least to consider striking at the American strategic retaliatory forces. It is difficult to imagine them standing idly by while the strategic nuclear balance shifts in our favor. The pressure on the Soviets to strike at American nuclear forces in this scenario will undoubtedly grow stronger with time. The United States will have in the near future, with the Trident D-5, the M-X, the Minutemen III with Mk 12As, and the Pershing IIs, a very substantial counterforce capability against Soviet land-based ICBMs. This development, coupled with the fact that the Soviets have a small and antiquated bomber force, will mean that the two land-based legs of the Soviet triad will be very vulnerable to an American strike. The survivability of their SSBN force will consequently loom as a much more important matter. Is it not likely, given such a future, that the Soviets would see the elimination of their SSBNs as leaving them wide open to a splendid first strike?

It seems reasonable to assume that if a conventional

war were to break out between the superpowers, American policy-makers would go to great lengths to prevent that war from escalating to the nuclear level. The situation on the northern flank presents a very dangerous situation in this regard and thus it is very likely that American policy-makers will simply not allow the navy to attempt to roll back the Soviet's Northern Fleet. How seriously tempted those policy-makers are will depend in large part on how important they think a naval offensive is for a favorable outcome in the conventional war. In other words, one would only be willing to accept the risk of escalation if it could be shown that there is a strong likelihood of successfully completing the mission and that that success will have a significant effect on the overall conventional war. These issues, of course, are the next ones to be considered.

The Prospects for Successful Implementation

The prospects of the navy rolling back Soviet naval forces in the Norwegian and Barents Seas and then eliminating the important military installations and forces located on the Kola Peninsula are not good. This is going to be a very difficult task, for it has become increasingly difficult in the 20th century for naval forces to strike effectively against a powerful land-based force. One only has to recall that in the First World War the British navy would not venture near the German coast to strike at the High Seas Fleet. British leaders worried that they would lose their fleet to the combined actions of mines, long-range coastal ordnance, torpedo boats, submarines, and the main units of the High Seas Fleet.[10] The coming of the airplane has

further complicated the attacking naval force's problem. Yes, the striking force can employ carrier-based aircraft; but the land power can always deploy many more aircraft than can a handful of carriers.

There are three specific reasons why it is going to be difficult for the navy to roll back Soviet naval forces located in the Norwegian and especially the Barents Seas. First, the Soviets have a large number of submarines in their Northern Fleet.[11] They have 42 ballistic missile submarines and 138 attack and cruise missile submarines assigned to that fleet. Approximately 75% of their most modern attack submarines are in these northern waters. The United States normally maintains about 57 SSNs with its Atlantic navies and 42 SSNs with its Pacific navies. Thus, even if the navy swings most of its SSNs to NATO's northern flank, those SSBNs will be facing a formidable force of Soviet submarines. Second, those Soviet submarines will be assisted by a formidable array of land-based aircraft and surface combatants located with the Northern Fleet. Third, and possibly most important, the Soviets are believed to have a huge arsenal of mines, which, when deployed, will make it very difficult for American naval forces to move swiftly into the northern waters. To compound this problem, the NATO navies, and particularly the Americans, have a less than formidable countermine capability. To quote Admiral Wesley McDonald (the Supreme Allied Commander, Atlantic) the "US countermine capability is woefully inadequate." [12] Furthermore, even if our minesweeping operations are ultimately successful, it is

important to note that minesweeping is a very time-consuming task.

In sum, it is going to be very difficult for the American navy to roll back the Soviet navy's Northern Fleet. This is not, of course, an iconoclastic view. There are many in the navy who accept this assessment.[13] It may be the case, however, that the American navy is such a superb fighting force that it will ultimately eliminate the majority of the adversary's fleet. Even if one accepts this outcome, however, it is clear that it will take the navy a considerable time to accomplish this goal. This point is driven home by John Lehman's answer to the question of how long it would take to accomplish this task. Lehman, whose confidence in the navy's ability to carry out difficult missions is very great, answered:

No one has tried to put a timeframe on it because of the inherent unpredictability...War is inherently unpredictable, one can't easily determine how it will break out or how long it will take, for instance, to nullify the submarine force in the Norwegian Sea. That is a tough area to operate in. It may take a week or it may take a month or 3 months. [Emphasis mine] [14]

Let us assume that the navy has successfully rolled back the Northern Fleet, driving the remnants of that force into their bases on the Kola. Now, the time has arrived to move the carriers forward and strike directly at the Kola Peninsula. This too is going to be a very difficult mission. The Soviets will undoubtedly have had considerable time to augment their already formidable forces and to fortify their defensive positions. These forces will present two different problems for the carriers. First, the Soviets will have at hand a large number of

Backfires and cruise missiles, as well as other systems, that can be used to strike at the carriers. It is difficult to imagine the Soviets not making a concerted effort to drive off or sink the carriers. Second, the Soviets will employ large numbers of fighter aircraft as well as SAMs and AAA to defend the Kola Peninsula. Thus, the carrier's strike aircraft will be flying into the teeth of a well-armed defender.

There are other considerations which cast doubt on the likelihood of the navy successfully silencing the Soviet threat on the Kola Peninsula. First, the number of attacking aircraft that a handful of carriers can muster for an air offensive is not great. There are limits as to how many aircraft can be placed on a carrier and furthermore, a substantial number of those aircraft will have to be used to defend the carriers.[15] Second, even if the navy enjoys great success with its initial air strikes, Soviet air power in that region will not be "finished off" in any meaningful sense. The Soviets will just move air units from other areas of the Soviet Union to the northern flank. It is simply not possible to inflict a knockout blow against the Soviet air forces; the air war against them will be a protracted one. This is one of the central lessons of the air war in World War II.[16] Consider two examples. The United States and its allies, despite inflicting a series of major defeats on the German and Japanese air forces in the early years of the war, were not able to establish complete dominance of the air until the final stages of the war. Second, the Luftwaffe scored a great victory against the Soviet air forces in the opening weeks of June 1941, but the

Soviets nevertheless quickly recovered. The important point for our purposes is that it is going to take a significant amount of time to neutralize Soviet forces on the Kola Peninsula.

It is difficult to see in light of these considerations how the United States navy is going to execute successfully its forward offensive strategy. Let us assume, however, that they are able to do so in some reasonably short period of time. What impact will such an outcome have on Soviet calculations regarding the Central Front? What, in other words, does successful execution of the maritime strategy portend for conventional deterrence in the European heartland?

The Impact on Conventional Deterrence

Offensive sea control lies at the heart of the maritime strategy. It is therefore necessary to determine the importance of securing sea control for a war on the Central Front. There is, as emphasized, considerable overlap between the offensive sea control and power projection missions. Consequently, one might argue that the power projection capabilities inherent in the maritime strategy might directly influence the land war on the intra-German border. The navy has actually not been very explicit about the power projection mission per se, preferring instead to emphasize the sea control mission. Still, it is necessary to consider the likely impact of both missions on the prospects for conventional deterrence in Europe.

SEA CONTROL: A fundamental asymmetry lies at the heart of the sea control mission: only NATO's position on the Central Front,

and not the Pact's, will be directly affected by the outcome of the naval battles in the Atlantic. NATO seeks to control the seas so that it can maintain a constant flow of men and materials from the United States to Europe. The Soviets, on the other hand, aim to dominate the SLOCs so that they can cut that flow and weaken NATO's ground and air forces on the Central Front. This battle for sea control will have hardly any direct effect on the size and strength of Warsaw Pact forces. The Soviet Union and its allies, unlike NATO, do not have lines of communication that traverse large bodies of open water and are therefore vulnerable to naval forces. The subsequent discussion must therefore consider the impact that control of the SLOCs by both the Soviets and NATO will have on NATO force levels in Central Europe.

There is absolutely no question but that NATO must control the Atlantic sea lanes if it hopes to avoid defeat in a conventional war. The NATO war effort (assuming, of course, that NATO checks the initial Pact onslaught) will require massive amounts of men and material from the United States, about 95 percent of which will move by sea. It would be impossible for NATO to hold out against the Pact if the SLOCs were severed. Allied experience against German U-boats in both World Wars clearly demonstrates the importance of SLOC control. The principal goal of the maritime strategy is to make sure that NATO maintains sea control. This discussion prompts the important question: What impact will successful execution of the maritime strategy, with its promise of NATO control of the SLOCs, have on conventional deterrence?

The answer is straightforward: whether or not NATO

implements the maritime strategy will have little effect on the Soviet decision to launch an offensive in Central Europe. Successful execution of the maritime strategy will be of small consequence for conventional deterrence. This is the result of two important considerations. First, in all probability, the Soviets will opt for war only if they calculate that they can win a quick and decisive victory on the battlefield. They are not at all likely to strike if they believe that there is a good chance that they will become embroiled in a protracted war. Second, with or without a maritime strategy, the Soviets cannot plan on winning a quick naval victory that will enhance their prospects of effecting a blitzkrieg. What happens in the initial stages of the SLOC war will have little influence on the Soviets' position in Central Europe.

Two factors underlie the argument that the battle for control of the Atlantic will not have much influence on the situation on the Central Front in the early stages of a conflict. First, given the large size and high quality of NATO's combined navies, the Soviets cannot expect to shut down quickly the flow of supplies from the United States to Europe. It will take considerable time, under the best of circumstances, for the Soviets to win a victory in the SLOC war. This argument points up the very important fact that for deterrence purposes, it really matters little whether NATO employs a strategy of defensive sea control or the more ambitious maritime strategy with its emphasis on offensive sea control. The important point is that NATO's robust navies, coupled with either strategy, rule

out a quick Soviet victory in the Atlantic. Second, massive amounts of U.S. equipment and thousands of American ground forces are presently located in Europe. Moreover, the equipment for the American reinforcements that will be needed in the earliest stages of a crisis is pre-positioned in Europe. The manpower for those units can be quickly flown to Europe from the United States. Thus, for those initial battles, where the fate of the blitzkrieg will be determined, U.S. dependence on reinforcement by sea is nowhere near as great as it would be if there were few American forces in Europe.

The implication of this discussion is that resolution of the SLOC battle will be determined only after a long series of battles at sea. The consequences of winning or losing the SLOC battle are long term ones. Conventional deterrence, on the other hand, will fail or succeed on the basis of calculations about short-term outcomes.

This conclusion notwithstanding, the discussion does point up a situation where sea control might have significant implications for conventional deterrence. If the NATO navies were not large and powerful and if the United States did not have significant ground and air forces prepositioned in Europe, then the Soviets might be in position to use their navy to enhance their prospects of scoring a quick and decisive victory in Central Europe. Fortunately, this is not the case.

POWER PROJECTION: The offensive sea control mission, as emphasized, has significant power projection capability inherent in it. This capability is manifested in the navy's planned

strikes against the Kola Peninsula. Although the navy usually talks about these strikes in terms of their effect on sea control, one might argue that these attacks on the Soviet homeland will directly influence the course of the war on the Central Front. These strikes, so the argument goes, will force the Soviets to transfer much needed resources from the European heartland to the northern flank. This will diminish the Soviet's prospects of effecting a blitzkrieg.

The sea control mission, as emphasized, is almost exclusively concerned with influencing the size and shape of NATO's ground and air forces in Central Europe. The Soviet navy, in effect, attempts to stop the flow of reinforcements from the United States to Europe, while the NATO navies seek to thwart the Soviets. The battles for sea control will have no meaningful impact on the strength of the Warsaw Pact armies located in the European heartland. Power projection represents, in effect, an effort to eliminate this asymmetry by changing the ultimate target of the naval war from NATO ground forces to Pact ground forces. Specifically, the American navy will be used to weaken Pact forces on the Central Front.

It is not likely that power projection will have the intended effect. First, to affect the outcome of the land battle in Germany, the navy must force the Soviets to shift air and especially ground units from the Central Front to the northern flank. The war in the north is not going to force the Soviets to move additional ground units there from the Central Front. The navy, after all, is not arguing for a large-scale amphibious operation against the Kola Peninsula. The Soviets might very

well want to send additional air units to the northern flank. Those air units, however, can be drawn from regions of the Soviet Union not directly involved with the conflict on the Central Front.

Second, there is the time factor. The Soviets, as emphasized, are likely to strike only if they believe there is a good chance that they can win a quick and decisive victory. An American naval offensive, on the other hand, is going to take time to prosecute. Carrier-based strikes against the Kola Peninsula, for example, will not take place until after the northern fleet has been rolled back. There are substantial reasons, as emphasized, for believing that these operations will take considerable time. The key point here is that the Soviet's time frame for executing a successful blitzkrieg should be short enough that events on the northern flank will not upset it in any way.

Third, even if the Soviets believe that the American navy is fully capable of executing the maritime strategy in a short period of time, the resulting threat to Soviet forces on the Central Front simply would not be very great. The Soviet Union is a great land power that is relatively impervious to naval strikes on its peripheries. Secretary Lehman, who is given to emphasizing the relevance of Mahan, argues that "the sea is inevitably the major arena of competition and conflict among nations aspiring to wealth and power." [17] This statement is probably an accurate description of the conflict between Japan and the United States. It is not, however, an accurate

assessment of the Soviet-American competition. The Soviet Union is essentially a continental power that views the European heartland as the main arena of competition. For the Soviets, and ultimately for NATO, Central Europe is where a major conventional war will be settled. The navy could score a stunning victory on the northern flank, and it would all be for naught if NATO failed to hold the Soviets in the land battle on the intra-German border. The Soviets, after consolidating their position on the continent, would then have little difficulty eliminating the problem on their northern flank.

In short, a Soviet decision to launch a blitzkrieg will in all likelihood not be affected in any meaningful way by the threat of naval strikes against the Kola Peninsula. Experience from the two World Wars seems to bear out this point. An examination of the decision-making processes leading to the German decisions to launch the Schlieffen Plan (1914) and the Manstein Plan (1939-1940) show quite clearly that the Germans paid hardly any attention to the British naval threat. They recognized, as the Soviets undoubtedly do, that in the European heartland, ground and air forces, not naval forces, determine whether an attacker will score a quick and decisive victory.

One final point is in order. It was noted earlier that whether or not American decision-makers are willing to allow the navy to execute the maritime strategy, with its attendant risks of escalation to nuclear war, will depend in part on the expected benefits from that strategy. In light of the major doubts that exist about our capability to execute the strategy, as well as the marginal advantages that accrue from its implementation, it

is difficult to imagine the navy being allowed to strike towards the Kola Peninsula.

IV. CONCLUSION

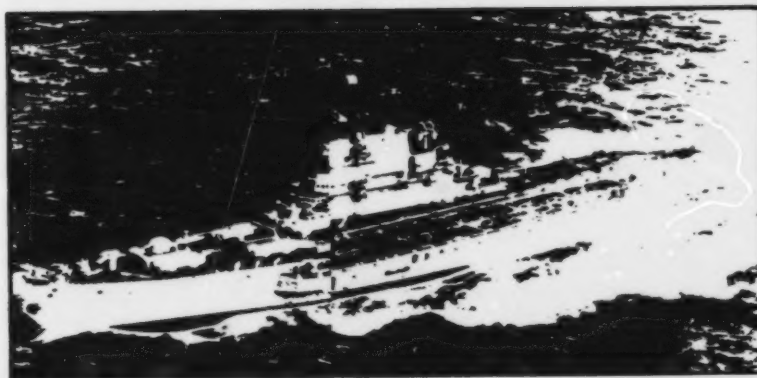
The bedrock conclusion of this essay is that the maritime strategy is not likely to have an important effect on conventional deterrence in Central Europe. There are a number of points to be made in this regard. First, the navy will probably not be allowed to try to execute the strategy. Second, even if the navy is given the green light it is not clear that it is capable of implementing the strategy. Given these two considerations, a convincing case can be made that the maritime strategy will become inoperative once war begins. Third, even if the maritime strategy is successfully carried out, it would in all likelihood not have much influence on the Soviets' prospects for launching a blitzkrieg, the calculation that lies at the heart of conventional deterrence.

This conclusion about the maritime strategy does not mean that the United States and its allies do not need powerful navies. They most certainly do. The robust NATO navies, as emphasized, make it very difficult for the Soviet navy to interdict the SLOCs in the crucial early stages of a European war. Moreover, although it is not of great import for deterrence, it is absolutely essential that NATO have powerful navies so that it can prevail in a protracted SLOC war.

By Commander Michael W. Sherry

Plan Orange Revisited

Just after dawn on 7 December 1941, aircraft took off from this Japanese aircraft carrier and, when they returned in ecstatic triumph, one of the major casualties they left behind in the rubble and wreckage of Pearl Harbor was War Plan Orange, the blueprint for the employment of our battleships in the event of war with Japan. As, today, we formulate a war-time strategy against the Soviets, who now have carriers like the Novorossiysk, inset, an important distinction should be made: The Soviet Union does not need its navy to win a war; the Japanese empire did.



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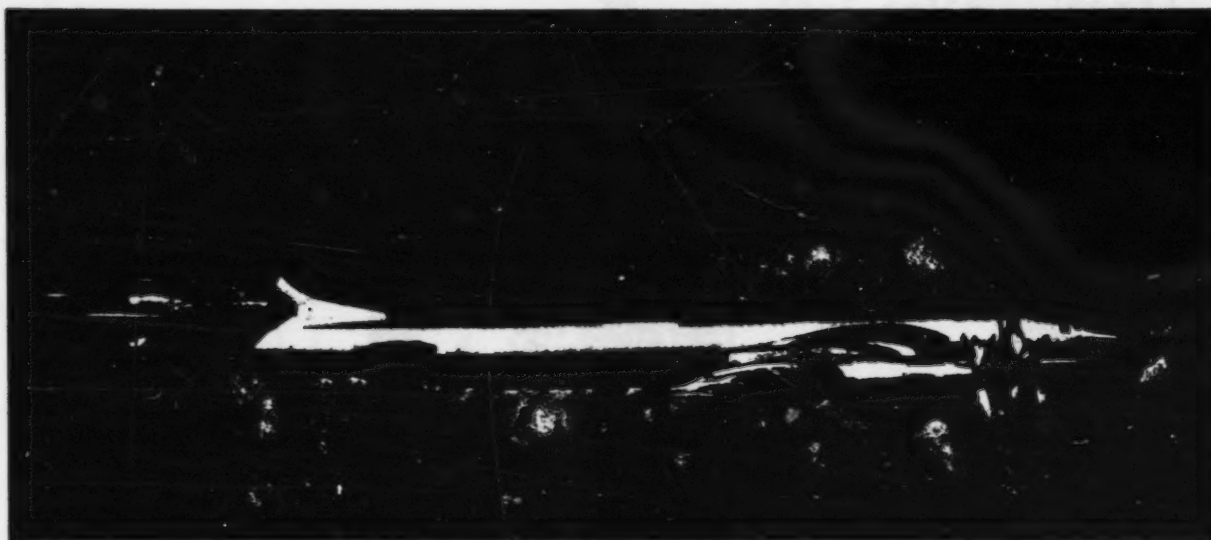
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After nearly 50 years and despite an entirely different enemy and strategic situation, the war games and fleet exercises of today have essentially changed from those of the past in only one respect. They have replaced the defense of the Philippines with the defense of Iceland and Norway and made Soviet forces rather than Japanese forces the objective of U. S. strategy. As recently as the spring of this year, Teamwork '84 was conducted with the primary objective of operating a carrier battle group in the Norwegian Sea in support of an amphibious landing in northern Norway. The strategy is the same—hold the island and concentrate the fleet (four carrier battle groups vice a line of battleships) to destroy the enemy. The validity of this Mahanian strategy is examined by comparing the naval strategic situation in 1941 and today, the capabilities of the Imperial Japanese and Soviet navies, the capabilities of the U. S. Navy to counter both of these threats, and the factors which made

Norwegian Sea/Kola Peninsula region. The Soviet Union would more likely be concerned with preventing its opponent from using Iceland, not with capturing and occupying it.

Some might believe the Soviet Union would want to use Iceland as an offensive base for air attack and surveillance against allied convoy routes. A number of factors make such Soviet use unlikely: the theories of Admiral Sergei Gorshkov, Commander in Chief of the Soviet Navy, the Soviets' difficulty in supplying such an exposed base as Iceland, and the ability of the allies to use bases in the United Kingdom and Greenland, coupled with airborne warning and control system aircraft, to monitor and attack the supply line. The importance of the respective islands to the Japanese empire and the Soviet Union is at least an order of magnitude apart.

The parallel between the effect of Allied control of Iceland on German naval operations in World War II and



Plan Orange workable and much of the current strategy either unworkable or unnecessary.

One fundamental factor must be borne in mind when formulating a naval strategy against the Soviet Union—the Soviet Union does not need its navy to win a war. The Japanese empire did. This difference must be the point of departure for examining the relevance of U. S. defense planning in 1941 and today. The Philippine Islands were a garrote which could be employed to strangle the lifeline of Japan to its overseas resources. The Japanese realized that control of these islands by a powerful enemy, such as the United States, would lead to defeat in war.

Whereas an enemy-controlled Philippines had a terminal effect upon the Japanese empire in war, control of Iceland by an enemy will not directly lead to the defeat of the Soviet Union. The Soviet Union's chief concern about Iceland is the threat it poses as a surveillance platform and forward base for antisubmarine warfare (particularly against Soviet submarine-launched ballistic missile platforms), antiair warfare, and antisurface warfare in the

future Soviet naval wartime operations proves an interesting comparison. Although the Allies controlled Iceland throughout World War II, German submarine activities continued to increase until 1943. Iceland contributed to the defeat of the Nazi submarine threat, but it was not the pivotal factor. This fact is not lost on the Soviets. In contrast, the consequences of the successful invasion of the Philippines by U. S. forces caused the Japanese to risk their remaining fleet in battle at Leyte Gulf.

A key factor in evaluating the validity of U. S. war plans versus the Japanese empire and the Soviet Union is the naval capability of each. In 1941, the Imperial Navy was a modern naval force designed for extended high-seas operations and supported by a substantial number of overseas logistics bases. Its leaders had political clout and were important to the Army General Staff because of the near total reliance the army had upon the navy to ensure the logistics supply line was kept intact. The Imperial Navy had been battle-tested in 1905 against the Russian Navy and won decisively. It had recognized the value of



SOVIET MILITARY POWER

the aircraft carrier and, under Admiral Isoroku Yamamoto, pioneered the carrier strike force. In short, in every way, the Imperial Navy was a formidable threat. The major Achilles' heel of the navy (and the Japanese industrial base) was its dependence on overseas oil. This was the reason for the importance of U. S. war plans with regard to the Philippines.

The predicament of the Soviet Navy and that faced by the German Navy prior to World Wars I and II are the same. Although Admiral Gorshkov has been the driving force in developing the Soviet Navy into a potent force, he has not solved the same fundamental problems which plagued the German Navy: (1) restricted access to the open ocean; (2) lack of secure overseas operating bases; (3) lack of organic fleet surveillance and targeting systems; and (4) a secondary position in the military policy-making apparatus of the government. To be sure, the innovation, design, and technological advances the Soviet Navy has made in antiship missiles, mine warfare, and submarine developments, among others, are impressive. But it should be remembered that the German Navy was also highly innovative in design and weaponry prior to both World Wars. (The results of the battle at Jutland showed superior design and construction of German ships, and the *Bismarck's* design and construction outclassed the Allies' efforts at the beginning of World War II.)

The ability to bring naval forces, other than submarines, to bear once war has been declared and total emission control is the rule is the bane of the Soviet Navy and was the bane of the German Navy. Because many Western analysts have been mesmerized by Soviet naval expansion, Gorshkov's statements relative to the Soviet Navy going where it wants, and the *Okean* exercises, they have tended to dismiss Soviet claims that their fleet is defensive in nature—designed to protect the motherland and their submarine-launched ballistic missile (SLBM) fleet—as propaganda.

Several factors tend to strongly support the Soviet claim. First, and most important, it is necessary to examine the theories of the man who is the father of the modern

Sending carrier battle groups into the Norwegian Sea to defend Iceland or Norway plays right into the hands of the Soviets. Reconnaissance aircraft like the Tu-95 "Bear D," opposite page, can provide over-the-horizon targeting to Soviet combatants in this area. Also, the Norwegian Sea is well within the reach of the antiship missiles of the "Backfire" bomber, above.

Soviet Navy—Admiral Gorshkov. In his book, *The Sea Power of the State*, Gorshkov states the following:

"Today, a fleet operating against the shore is able not only to solve the tasks connected with territorial changes but to directly influence the course and even the outcome of war. In this connection the operations of a fleet against the shore have assumed paramount importance in armed conflict at sea governing the technical policy of building a fleet and the development of naval art.

"And while earlier the crux of the efforts of a fleet was directed against the enemy fleet, now the chief goal of a fleet is becoming that of ensuring the fulfillment of all tasks associated with action against enemy ground objectives [protect SLBMs] and the protection of one's territory from the strikes of his fleet."

In Gorshkov's opinion, all of the decisive engagements in the World War II Pacific theater occurred as a result of operations against the shore. Fleets were drawn into battle to prevent attacks on the shore. The fact that naval losses are hard to replace is not lost upon Gorshkov. He states, "... each defeat inflicted on an enemy means not only the achievement of the goal of the given combat but the creation of favorable conditions for quite a long time for solving the next tasks."² In addition, he writes about the increasing requirement for "interlocking of the spheres of combat operations by branches of the armed forces."³ All of these statements clearly reveal that the Soviet Navy seeks to develop a defense in depth for the motherland and its SLBM fleet; it does not seek to defeat the U. S. fleet in the open ocean.

Another factor supporting the Soviets' claimed defense policy is the manner in which Gorshkov put his theories into practice. First, Soviet combatants are almost totally dependent for over-the-horizon (OTH) targeting information from external sources in an emission control environment. These generally include tattle-tales, satellites, merchant ships, recon aircraft, or submarines. In a protracted conflict, these sources would be at great risk (assuming antisatellite programs are successful). Without organic OTH targeting, offensive operations against a strong enemy fleet that possesses OTH targeting in the form of aircraft carriers would be extremely difficult.

Second, Soviet employment of fleet units and doctrine emphasizes the first strike. The *Okean* exercises were designed to coordinate a worldwide simultaneous strike on enemy forces with mass missile attacks to saturate defenses. This is not a tactic employed by a navy that expects to wrestle control of the seas from an adversary in a prolonged sea war because of the drastic consequences of failure. This tactic is more a one-shot effort by the Soviet Navy to cause heavy losses to hard-to-replace naval assets in order to buy time.

Third, much new weaponry and platforms were developed. These include the "Backfire" bomber with antiship missile as a land-based aircraft to guard the seaborne approaches to the Soviet Union; mines, both offensive and defensive; a large submarine force, both nuclear and diesel, which is not as limited in employment as the surface force and has fewer open-ocean access problems; and large numbers of missile-equipped coastal patrol boats.

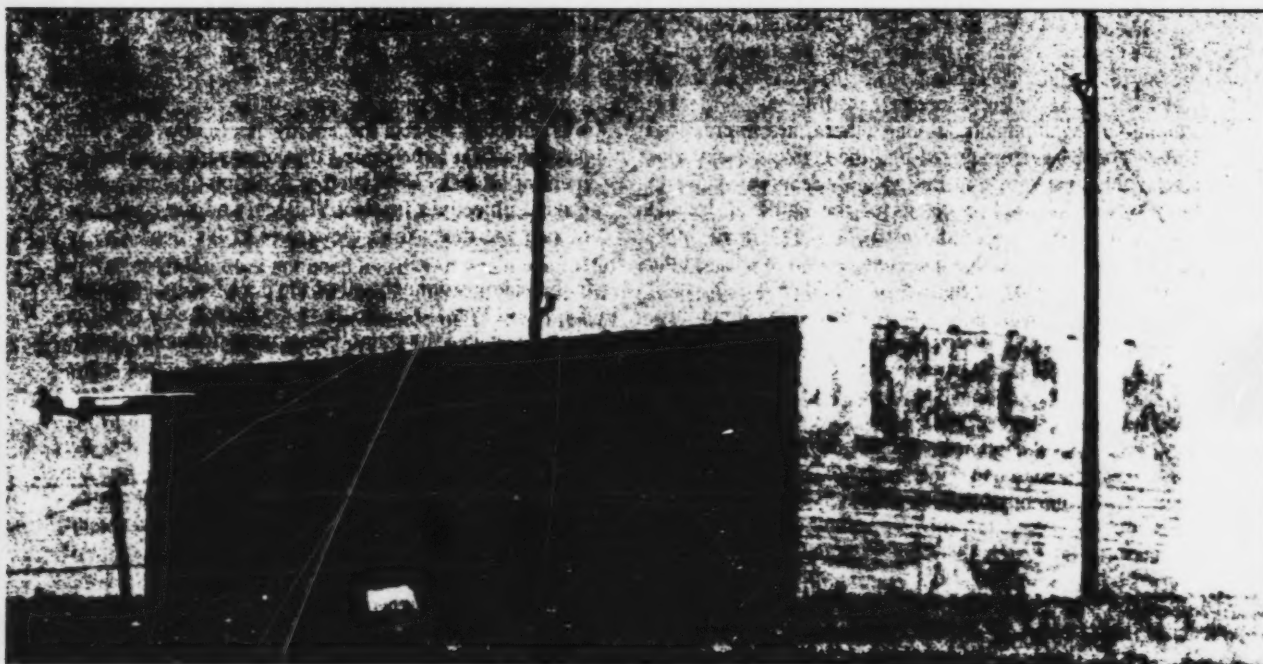
Thus, the Soviet Navy is exactly what Gorshkov says it is—a defensive system to provide defense in depth against seaborne attack and amphibious invasion of the motherland. The "Backfire" and offensive mine capability pro-

vide long-range defense, followed by surface and submarine defense, with coastal patrol craft, tactical aircraft, and defensive mines being the final line of resistance. The closer an enemy moves to the Soviet Union, the greater the defensive strength. Conversely, the farther the Soviet fleet operates from the homeland, the weaker it is.

Finally, an important factor is the position the Soviet Navy holds relative to the Soviet Army in the military policy determination of the Soviet Union. Again, the analogy with Nazi Germany is a good one. The German Army was, and the Soviet Army is, in the driver's seat in the formulation of war plans. With no track record of victory in modern war, the potential consequences to the flanks of the Soviet Union if the fleet is lost in a distant open-ocean battle (greater dispersion of army troops), and the general nature of army-navy disputes in a totalitarian state, it is unlikely that major wartime overseas fleet operations would be approved by the supreme military staff. Only an opening preemptive attack would be considered to improve the odds for later in a war.

The U. S. Navy's ability to counter the threat of the Imperial Navy in 1941 and the threat of the Soviet Navy today is very different. Whereas the Imperial Navy could conduct sustained offensive operations far from the home islands and possessed almost identical offensive and defensive capabilities as the U. S. Navy, the Soviet Navy is not in the same position. Planning to defeat the Japanese became a matter of numbers of ships and aircraft that could be brought to bear and of devising a strategy to cut the resource pipeline to Japan.

In 1941, with the U. S. fleet—spread between the Pacific and Atlantic oceans—supporting President Franklin D. Roosevelt's armed neutrality policy, the possibility of early fleet concentration for decisive battle was remote.



Holding a position on the Japanese lifeline might be feasible, and General Douglas MacArthur convinced the Army Chief of Staff, General George Marshall, it could be done. Marshall then brought pressure on a reluctant Navy to assent to Plan Orange. The plan was to hold on until the fleet arrived in three to six months to win a decisive Jutland-type battle and eliminate the Japanese threat.⁴ (The defense of the Philippines had been considered impossible, and their loss was conceded in Plan Rainbow Five in March 1941. MacArthur's personal intervention and the drive to fortify the Philippines, however, led General Marshall to believe the U. S. position, by November 1941, was favorable. The Navy Department did not share the Army's optimism.)

Planning to deal with the Soviet Navy had generally focused upon destroying the Soviet submarine threat until recent developments—the "Backfire" bomber and rapid expansion of the Soviet surface forces—have made dealing with the entire Soviet Navy the problem. The wartime capability of the U. S. Navy to defeat the Soviet Navy in the open ocean, pitting U. S. carrier battle groups against Soviet surface forces, has not been seriously questioned. What has been the subject of great debate is the U. S. Navy's ability to survive in the so-called "high-threat" environment, which envisions a preemptive three-dimensional, coordinated Soviet attack with masses of antiship missiles from differing axes with heavy electronic countermeasures. The U. S. Navy has the capability to find and destroy Soviet submarines. The only question is the time required and the amount of damage these submarines will inflict before they are destroyed.

The F-14 is clearly superior to current Soviet aircraft including the "Backfire." As mentioned, in a "surface" action outside land-based air support for the Soviet fleet,

Soviet combatants are at a definite disadvantage. In short, the piecemeal employment of Soviet naval forces will ensure their destruction. Their coordinated, surprise use, however, will seriously tax U. S. Navy capabilities.

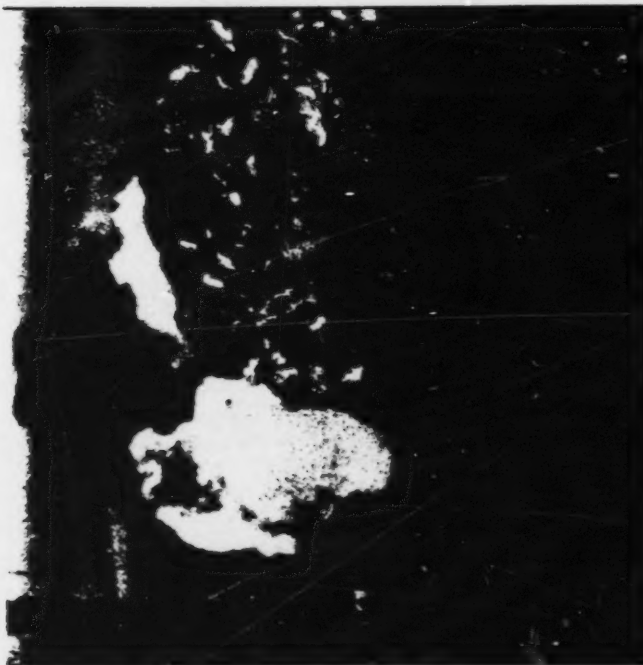
Was Plan Orange inherently a bad concept? No. The events surrounding the recapture of the Philippines and the destruction of the Imperial Navy at Leyte Gulf proved the validity of the concept of forcing the Japanese to fight a decisive battle over control of the Philippines. Plan Orange did, however, suffer from two major deficiencies.

First, it failed to allow for the changes in naval warfare which were brought about by the airplane. The battleship was still considered the ultimate weapon, and the vulnerabilities of these ships to air attack were not really believed until the attack on Pearl Harbor and the sinking of the *Prince of Wales* and *Repulse* by the Japanese. Implementing Plan Orange with battleships in an attempt to defeat the Japanese carrier forces, supported by land-based aircraft, would have been disastrous.

Second, there were not enough naval assets available in the Pacific, nor could they be assembled in time, to relieve an inadequately prepared Philippines.

U. S. planning for operations in the Norwegian Sea in defense of Iceland and Norway requires examination. First, what vital interests that would justify the potential cost in naval assets lie in this region? There is only one target in this area worthy of naval assets—the Soviet SLBM fleet. This fleet can be engaged most effectively by using quiet attack submarines, not carrier battle groups. Iceland presents too many logistics problems to be a serious candidate for airborne or seaborne invasion, particularly with any type of defense force on the island. It is a much more likely candidate for chemical attack, which would prohibit allied forces from using it.

The defense of Norway is an even more interesting question. The capture of Norway by the Germans in World War II did not have any significant effect upon the central battle in Europe. It did, however, cause greater dispersion of German troops, which were forced to fight a partisan war for five years. The same analysis can be applied to a Soviet invasion of Norway. This invasion would be a defensive move to keep NATO forces from easily striking Soviet installations on the Kola Peninsula. Tying up large numbers of Soviet troops in Norway is clearly to NATO's advantage. Using naval assets in this struggle, however, does not contribute to this strategy effectively. Employing amphibious troops plays into the hands of the Soviets. In short, there is no reason for sending carrier battle groups into the Norwegian Sea in support of the defense of Iceland or Norway that would offset the possible losses.



The Tomahawk cruise missile—shown here in a July test after flying 400 miles from the submarine that launched it—promises to be the most effective means of enforcing a blockade of the Soviet Northern Fleet by destroying Soviet shipyards and airfields on the Kola Peninsula.

This type of operation plays directly into the hands of an enemy who has designed a defensive system to deal with this type of maneuver. The entire area is within easy "Backfire" range, can be covered fairly easily by recon aircraft, is within easy transit time for diesel submarines (which present difficult antisubmarine warfare problems for U. S. Navy units if positioned in the Greenland-Iceland-United Kingdom Gap and in patrol areas en route to Norway), makes Soviet coordinated attack command and control easier, and is highly susceptible to mining operations and the use of coastal patrol craft.

More important, by fighting a decisive battle under favorable conditions in "home" waters, even the destruction of the Soviet fleet could be tolerated, provided it exacted a sufficiently high price in hard-to-replace U. S. naval assets. As mentioned, the loss of the entire Soviet fleet will not spell defeat for the Soviet Union in war. The loss of a major portion of four carrier battle groups would severely restrict U. S. Navy operations and be a significant setback. From Gorshkov's point of view, the Norwegian Sea is a giant Venus flytrap, and the nectar which draws the flies is operations against Iceland or Norway or both. Every mile the U. S. Navy is drawn into the Norwegian Sea increases the odds in the Soviet fleet's favor.

In addition, it is prudent to remember the lesson the Royal Navy learned at terrible cost during the German invasion of Crete in 1941. Prime Minister Winston Churchill's orders to use the Mediterranean Fleet to attack German units attempting to land in Crete nearly resulted in the destruction of that fleet. Despite the Royal Navy's overwhelming command of the sea in the region, the proximity of German airfields and strength made the use of naval forces operating at extreme distance in unfriendly waters hazardous. After the British had sustained severe losses, Admiral Andrew Cunningham, commander of the Mediterranean Fleet, ignored Churchill's orders and returned the remaining ships to Alexandria, Egypt. Command of the sea is not enough. The total environment must be under control. The situation in the Norwegian Sea resembles that near Crete, with the exception that strong Soviet naval forces are available now where strong German naval forces were not in World War II.

Finally, there is the importance of the destruction of Soviet military targets such as shipyards and airfields in the Kola Peninsula region. The most cost-effective manner of attack would seem to be by cruise missile, either sea or air launched. In addition, a continual rain of these missiles would have a psychological effect on the Soviets, just as the V-1 or V-2 had on England in World War II. But once again, these missiles should not come into immediate play in the central struggle that will occur in Europe. They are most valuable to NATO by tying up large numbers of Soviet military personnel and equipment. The use of cruise missiles must not be underestimated as the airplane was prior to World War II.

Since the current strategy will not suffice, an alternative one must be developed. The problem to be addressed is how to render the Soviet Navy ineffective. There are two principal ways to do this—destroy it or quarantine it from areas vital to U. S. and NATO interests. In *Some Principles*

of Maritime Strategy, Julian S. Corbett describes four considerations that should be observed in formulating a maritime strategy:

► "The paramount questions of strategy both at sea and on land turn on the relative possibilities of [the] offensive and defensive"

► "Command of the sea . . . means nothing but the control of maritime communications, whether for commercial or military purposes. The object of naval warfare is the control of communications and not, as in land warfare, the conquest of territory. The difference is fundamental."

► "Even permanent general command can never be absolute. No degree of naval superiority can ensure our communications against sporadic attack from detached cruisers, or even raiding squadrons, if they be boldly led and are prepared to risk destruction."

► "By general and permanent control we do not mean that the enemy can do nothing, but that he cannot interfere with our maritime trade and overseas operations so seriously as to affect the issues of the war"

With these guidelines, it seems that the U. S. Navy's principal task is to prevent Soviet interference with the sea lines of communications to Europe. This entails dealing with the Soviet submarine, surface, air, and combined coordinated threat.

A blockade strategy is advocated. U. S. and NATO units should let Gorshkov stew in the juices of his defense in depth. Instead of going into the Norwegian Sea, the sea should be sealed off at the Greenland-Iceland-United Kingdom Gap and the North Sea. Attack submarines, land-based aircraft, and cruise missiles would be used as the principal means of attack on Soviet units in the Norwegian Sea region. If the Soviet Navy wishes to fight, it should be drawn out and destroyed piecemeal as it enters areas where three-dimensional attack coordination becomes impossible.

Winston Churchill once said that no man could win World War I, but Admiral John R. Jellicoe could lose it in a single afternoon (by allowing the British fleet to be destroyed in battle). The U. S. Navy might not lose a war in the Norwegian Sea in a single afternoon, but Admiral Gorshkov would like to give us the opportunity.

¹S. G. Gorshkov, *The Sea Power of the State* (Annapolis, MD: Naval Institute Press, 1979), p. 217.

²*Ibid.*, p. 229.

³*Ibid.*, p. 216.

⁴Hanson W. Baldwin, *The Crucial Years, 1939-1941* (New York: Harper and Row, 1976), pp. 383-391.

⁵Julian S. Corbett, *Some Principles of Maritime Strategy* (London: Longman, Green, & Co., 1918), pp. 78-91.

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The Impact of New Maritime Technologies

HUBERT FEIGL

An evaluation of maritime technologies should by no means be based upon the classical pattern of a fleet. Today a much broader approach is necessary, because surface vessels must co-ordinate their activities with air- and undersea-based systems. Moreover, precision-guided weapons, operating over large areas, together with an increasing capacity for surveillance, create a global framework within which naval force must be structured. In pursuit of their worldwide interests the super-powers have to implement these new technologies, leaving their allies to share the responsibilities and high costs. Furthermore, by taking advantage of new developments, smaller countries, particularly those bordering the sea, may cause the super-powers to reconsider their deployment of naval forces.

The Drawbacks of Surface Vessels

Surface vessels are indispensable as an efficient means of transportation and have long endurance at sea. However, they pose special defence problems in that they are tied to a two-dimensional field of operation - the water surface - where two combat spheres, the atmosphere and hydrosphere, meet.¹ Each of these two spheres requires quite different and highly specialized weapons systems because of its physical properties. The surface vessel, with the deficiencies rather than the advantages of other systems, runs the risk of not being able to keep pace with all these new developments. But being in the centre of the two spheres of action, it must also close the gaps between, for instance, air defence and anti-submarine warfare (ASW). Submarines, for example, cannot defend surface vessels against air attacks, and airborne ASW systems

¹ Strictly speaking, the continent, the sea-bed and inner space should also be taken into account.

may not alone provide sufficient coverage against submarines. Other devices with other specific performance capabilities must consequently be incorporated, and the surface vessel then assumes a central role in co-ordinating these various systems. As a result the submarine faces not only a highly diversified weapons platform but also a wide range of sensing techniques, many of which will have applications in precision-guided weapon design.

Surface ships can easily be detected, regardless of their size, and anyway ship-building requirements (like seaworthiness) tend to operate against smaller vessels which would constitute smaller targets. Target signatures of ships are very distinct and can be easily detected by infrared sensors and radar even if normal visibility is impaired. Guided-weapons systems can thus be employed against distant ship targets.

The isotropic characteristics of the atmosphere are much more favourable for the use of sensors than the more complicated physical characteristics of the hydrosphere. But surface vessels cannot exploit a 'gap' in sensing which, for example, prevents submarines from being tracked by electromagnetic radiation. Surface vessels are also rather noisy and can therefore be attacked, for instance, by acoustic homing weapons.

With respect to electromagnetic sensing, surface ships, like aircraft, operate in a 'void' medium and thus constitute high-contrast targets. Aircraft may vary their flight profiles and procedures deliberately and operate at very high speeds; they have to stay in a hostile environment for a short time only, making optimum use of extended sensor and weapon ranges. For surface vessels, however, both the range of sensing and speed are limited. With

their higher speed and range, air-delivered weapons, passing through the atmosphere, can upgrade surface and even sub-surface weapon platforms. For this purpose, however, it is necessary to extend the range of sight by the use of air- and space-borne sensors, as well as the range of sub-surface surveillance by the use of mobile and fixed acoustic sensors. Surface vessels can also compensate for their speed deficiencies by using other platforms, such as fixed-wing aircraft, helicopters and submarines, carrying sensors and weapons systems.

The variety and scope of weaponry which may be fired by an opponent from various combat zones can saturate a ship's defences. Moreover, it must be remembered that the surface vessel has to withstand sustained hostile fire, for it can rarely terminate an engagement by itself. The strain on it is not only highly diversified but may be concentrated in a very short and decisive period. In order to keep operating, a sufficiently high defence capacity to cope with maximum threats has to be provided, because the penetration of a single weapon is potentially a fatal blow. This has led to an accumulation of sensors and sensor defence installations - electronic counter-measures - whose ability to function must be maintained even when hostile attempts are made to interfere with them by means of electronic counter-counter-measures. In a contest of sensors, however, on-board systems alone may not suffice. The decisive back-up to a vessel's firepower, which is mainly for self-defence, lies in the field of organization. This comprises highly sophisticated ship-based command and control systems; more important, the sharing of duties and mutual support of ships and aircraft within a task group; and a variety of early warning installations, worldwide navigation and telecommunication systems. Surface craft must be integrated into an overall structure, the 'non-floating' components of which may turn out to be decisive in maintaining the combat effectiveness of warships.

The Impact of New Weapons

Warfare at sea is being revolutionized by precision-guided munitions. In addition to ballistic homing weapons, anti-ship cruise missiles pose an ever-increasing threat to surface ships, and, being relatively inexpensive, give even small navies considerable firepower. Many types of

missile can be fired beyond the visual and radar horizon, some covering very extended areas. Real-time targeting data can be acquired by reconnaissance aircraft and ship-based electronic installations, and there are attempts (by the Soviet Navy, for instance) to integrate data obtained or relayed by satellite into overall missile command and control structures. Future development could be characterized by a gradually tightening missile network, covering large ocean areas and providing a high flexibility in concentrating firepower.

Unlike traditional naval weapons, an anti-ship missile system can provide any type of platform with a strike capability incorporating a very long range and an extremely high probability of a single-shot hit which will seriously damage any target. But the advantage lies with the attacker only if he succeeds in striking his opponent effectively before he has time to react. An attack on a high-value surface ship may justify the use of several anti-ship missiles, guided from different directions and employing unpredictable trajectories, some of them travelling just above the water surface (sea skimmers).

As stated above, the strain on ships in combat is not only highly varied but may also be concentrated in a very short period. If a missile launch cannot be thwarted, a final effort can be made to destroy, blind or decoy the homing weapon. Evasive manoeuvres may be no use as a defence, especially if future missiles attain supersonic speed. However, electronic counter-measures may be effective if missile-guidance modes and their possible combinations are known with certainty, though the attacker's penetration aids must be thwarted as well. Thus, in the framework of an integrated echelon ship defence, like the US Navy's *Aegis* system, hard-kill techniques are emphasized. Terminal threats must be countered by gun and missile fire, and even gas-dynamic laser weapons are envisaged as a last resort. However, it should be borne in mind that countering missiles is only second-best to destroying their launching platforms. A defensive effort including the support of non-floating organizational components is mandatory. As shown above, warships are considerably more effective in offensive combat if they are integrated into an overall operational network. Thus multi-based sea-borne missile

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systems with a cross-targeting capability may be on the horizon.

Cruise missiles are now in service aboard warships such as cruisers, guided-missile destroyers, fast patrol boats and submarines, as well as aircraft. Anti-ship missiles with ranges of between 20 and 400 kilometres have to a large extent replaced heavy ship artillery of big ships, and multi-purpose missiles capable of attacking air and sea targets are also being employed. Even missile-carrying freighters and tankers are being studied in the United States. Most important is the creation of guided-missile fast patrol boats, very small units for which missile armament represents a large gain in firepower and range. They are best suited for off-shore operations using more effective land-based command and control facilities. Furthermore, land-mobile light-weight missile systems for coastal defence may intersect off-shore shipping lanes and prevent hostile ships from entering narrow and enclosed waters (for example, in potential operations in Europe). Above all, it is doubtful whether it will be cost-effective to operate major warships in these off-shore areas - though it must be borne in mind that a superior air capability is essential and will be the dominant factor.

In oceans and other open waters, air-delivered stand-off weapons also compete with longer-range surface-launched anti-ship missiles. The American carrier programmes incorporate a long-distance capability for aircraft, which can preclude a missile exchange between surface vessels. This is backed up by medium-range anti-ship missiles (ranges of less than 120 kilometres) with helicopter-aided fire control. The Soviet Navy has introduced several missile systems, but until recently has put more emphasis on long-range missiles (with ranges of up to several hundred kilometres)³ although real-time targeting over long distances may prove to be the weak link in the systems. Effective Soviet air cover has been confined to the operational ranges of land-based aircraft, creating severe operational drawbacks. Today these two different approaches to naval armament tend to be converging. The Soviet Navy is making

progress in the construction of aircraft carriers, while the US Navy plans to introduce long-range anti-ship cruise missiles (range 500 kilometres, with a conventional warhead) to serve as a hedge against the growing Soviet missile threat.

Even more important is the nuclear strategic long-range configuration envisaged for cruise missiles. These missiles, having a range of up to 2,500 kilometres, are primarily designed to attack on-shore targets. Employing a low-level mode of penetration, they are efficient because they can carry large payloads and will ultimately achieve very high accuracies (with circular error probable as low as 30 metres). Improved terrain-correlation techniques could result in a micro-targeting capability, which would make new long-range options available for small-yield nuclear warheads or even for some conventional explosives. Long-range sea-launched cruise missiles (SLCM) can be fired from simple deck launchers and, in a sub-surface configuration, from standard torpedo tubes (submarine basing is obviously preferable, because it provides better concealment and keeps them operational in a less demonstrative manner). These systems - together with air-launched cruise missiles - can achieve a high degree of dispersion, which makes an effective surprise attack on them extremely difficult. By permitting more flexible defensive uses, these weapons are likely to lead to a restructuring of theatre nuclear forces in Western Europe.

New Ship Design

New technological developments in naval ship-building can be introduced into the fleet only after a long delay. New construction generally requires five to seven years from conception to commissioning, and after twenty-five years ships are considered obsolete. Until now weaponry has been considered obsolete after ten years, requiring periodical replacement. To facilitate refitting, modular design principles are being increasingly adopted (for example, container-type modules). Nevertheless, it takes a very long time for significant changes in ship-building programmes to be accomplished. Adjustments can be found most often in weaponry, fire-control equipment and electronics, because these essential areas progress the fastest. Remaining deficiencies have to be

³ The Soviet inventory also contains ballistic missiles with an anti-ship capability.

remedied by incorporating external components. Naval artillery is being replaced more and more by guided missiles, though it is still required for short-range combat and naval gunfire support. Major changes are also taking place in on-board electronic command and control centres, as detection, data evaluation and fire control become increasingly automated, reducing their manpower requirements but increasing their complexity and vulnerability.

The classical spectrum of naval units has changed considerably. Battleships and heavy-artillery cruisers have practically disappeared. Larger units of Western navies, such as guided-missile cruisers, were originally designed for air-defence capability, and anti-ship missiles were only added later. Soviet fleet cruisers, destroyers and frigates were designed from the beginning for engaging sea targets with cruise missiles, since the Soviet Union had no aircraft carriers at that time. Today most modern navies possess large combatants, such as guided-missile cruisers or frigates, which are also generally used as electronic command centres. In the US Navy aircraft carriers fulfil this mission. Very expensive multi-mission ships have generally been favoured, though many Western countries especially no longer feel financially capable of building them in the required numbers. Moreover, they have too high a value as targets, since a high rate of attrition is likely to occur in naval engagements. Frigates have become so complex and expensive that smaller, more specialized ships will have to meet future demands, though requirements of seaworthiness, endurance, reliability and combat-worthiness will set limits to this. In dense threat areas, risks can be reduced by co-ordinating a sufficient number of different components and dividing duties among them. Several fast patrol boats (or perhaps hydrofoils) carrying anti-ship missiles and ASW weapons can achieve the firepower of a cruiser if they are operated in a spread-out formation covered by helicopters and aircraft.

On the open sea, small surface vessels obviously lack seaworthiness and endurance, and larger warships are therefore still required. But it should be noted that possible improvements to conventional ships are rather limited. For instance, significant demands are being made for powerful and flexible propulsion systems. Nuclear propulsion plants and gas turbines

(combined with diesel engines for cruising purposes) can meet these requirements today, but for some time to come they will only be suitable for major warships, and the emphasis on smaller and cheaper ships will also limit their use. They are ideal propulsion systems for nuclear task forces, enabling them to operate almost totally independently, though, naturally, their advantages come into play only if all ships of a task force are nuclear-powered. But the speed of conventional displacement ships can no longer be increased cost-effectively. Forty knots is about the limit, which is considerably below the speed limits of sub-surface vessels (approximately fifty knots). Increased speed is offered by surface skimmers with reduced drag, but even a speed advantage will not obviate many of the drawbacks of a surface vessel mentioned above.

These new propulsion systems promise not only higher speeds but also a considerable increase in stability, which, because it provides a good platform for sensors and weapons, is especially important for smaller surface craft. New types of ship may include semi-submerged craft (raised out of the water by skimmers), hydrofoils, and surface-effect vehicles, which could become an entirely new type of amphibious assault landing-craft. Rather large surface units are envisaged, with semi-submerged rigid sidewalls (on the catamaran principle), which would be quite cost-effective and about four times as fast as conventional ships. The mobility of naval forces equipped with these vessels could be dramatically increased. Plans also exist to incorporate other new types of ships into naval forces. Hydrofoils will be especially suited for tracking tactical submarines at speeds of up to 60 knots. Beyond that speed, surface-effect vehicles show a better performance, with speeds of up to 80 knots. For the time being, surface skimmers will be restricted to coastal waters. The construction of larger craft of sufficient seaworthiness and open-sea endurance will pose serious problems.

Air Cover

As mentioned above, fixed-wing aircraft and helicopters have very important operational characteristics which might prove decisive in maintaining warship effectiveness in intense combat situations. Surface ships are required

for sea control and projecting sea power ashore, but there is still no alternative to air power.

Ship-based multi-purpose helicopters, in particular, contribute to the combat performance of warships. They can carry ASW systems, counter-cruise-missile equipment (such as radar, mechanical or electronic decoys) and air-to-air and air-to-surface missiles, thus assuring the integration of ships' offensive capabilities. Further contributions can be made by fixed-wing aircraft, capable of detecting, discriminating and attacking targets at distances far exceeding the ranges of other ship-based weapons. The range deficiencies of on-board air-defence systems make air superiority mandatory. High-performance fighters and long-range air-to-air missiles, like the American *Phoenix*, extend defence perimeters considerably. In addition, some of the drawbacks of isolated warships can be offset by reconnaissance and ASW aircraft.

All these improvements have greatly enhanced the role of conventional aircraft-carriers, future Sea-Control Ships, and other ships carrying vertical take-off and landing (Vtol) aircraft. According to the US Navy's concept, the multi-mission aircraft-carrier still remains the heart of the most capable naval task groups. However, it might be advisable to provide better dispersion of ship-based air potential by introducing smaller and less costly classes of carrier, as well as amphibious warfare ships armed with Vtol aircraft.

However, the effectiveness of sea-based air power could be eroded by the introduction of improved precision-guided weapon systems. If this occurs, drones and remotely piloted vehicles (RPV), as a substitute for fixed-wing aircraft, could be decisive in future warfare at sea. RPV, for example the American *Compass Cope*, have already shown great promise in area surveillance: via data links they can provide real-time reconnaissance for command centres. RPV are difficult to target and can operate within the enemy's air-defence perimeter, and low-cost, one-way mission RPV can be provided with an additional home-on target capability; results have shown that problems of monitoring them can be overcome. It has already been proved that fighter RPV would easily outmanoeuvre high-performance aircraft, and in the future RPV may replace aircraft and helicopters in many missions. The combined use of cruise missiles

and RPV is likely to challenge the superiority of ship-based aircraft and the carrier task-force itself.

The Undersea Environment and Submarine Detection

Underwater warfare is conducted in an ever-changing and little understood environment, where there is a significant gap in sensor capabilities because electromagnetic waves are rapidly attenuated by sea-water.⁵ In favourable conditions infra-red sensors may detect temperature variations in the surface layer of the sea caused by a submarine. The surface can also be monitored by radar low-light television cameras, special sniffing devices, and, more important, by magnetic anomaly detection techniques, but these work over short distances only (approximately 1 kilometre). In order to operate over longer ranges the whole sensing capacity must rely on sonar technology. Sound is transmitted fairly well in water, but the propagation of sound is influenced by the acoustic properties of the hydrosphere, varying with depth, temperature and salinity, which, in turn, change on a daily and seasonal basis and depend on the latitude. Changing velocities of sound propagation result in wave paths forming 'zones of silence', 'convergence zones' and 'channels'. Within the 'deep sound channel' at a depth of about 1,300 to 2,000 metres transmission reaches its optimum. But only in favourable conditions will this lead to a long-range capability for tracking, and telecommunications require particularly good conditions. The use of sonar is further complicated by ambient noise and confusing reflections from fish, rocks, etc., and in shallow waters reverberation phenomena may also cause difficulties.

These factors together reflect that current technological break-throughs are insufficient to cope with the inherent properties of the ocean, though a gradual improvement in various - mostly acoustic - techniques and better accuracy in predicting oceanographic conditions may have more success. Sophisticated signal-processing

⁵ With respect to sensing, in particular, there are considerable differences between the atmosphere and the hydrosphere. Of course extremely-low-frequency radiation penetrates deeper than sensing, but it can only be employed for long-range underwater telecommunication purposes.

techniques must be adapted to the operational demands made on them and to the sensor platform employed. Passive and active acoustic systems, of which there are many versions, can be mobile or fixed. In general, active sonar devices have detection ranges of approximately 20 kilometres, compared with the 100 kilometres or more of passive mobile systems. However, tracking might be limited to distances of only a few kilometres. Long-range surveillance can only be accomplished by means of large fixed hydrophone arrays.

These sensor characteristics must also be taken into account when considering the underwater deployment of weapons. Whereas acoustic homing is most suitable for torpedoes, short-range sensing techniques can also be used for both laying and detecting mines. Therefore, sophisticated combinations of various sensors play a major role in mine warfare and counter-measures against mines.

Some differences between underwater and surface warfare have been explained by the environmental characteristics mentioned above. The outcome of any future war involving sub-surface craft will depend on a superior knowledge of oceanographic conditions and the ability to exploit them using data processing techniques.

Surprise attacks against ships and concealment are the prerequisites of submarine survivability in an ASW environment, and highly integrated operational control centres, including tactical information and organization systems, are the key to optimum performance in combat between submarines, which is likely to be a very important element of any future conflict. Even a minor technical advantage could be enough to give one of the opponents the all-decisive offensive initiative. Besides, submarines are less endangered by 'break-throughs' in the sensor field than by an improved combination of ASW efforts - a more effective meshing of various detection means with extended-range ASW ordnance. Concealment can be improved by reducing noise (by silencing propulsion systems and making optimum use of hydrodynamics in hull-shaping) or by building smaller boats, since this makes tracking by active sonar more difficult. Boats could also make use of reinforced plastics, now under development, which absorb more sound than they reflect.

In addition, various acoustic deception and

spoofing techniques at present being developed will create a situation similar in principle to surface electronic warfare. The techniques incorporate older methods, such as acting as dummy reflectors, but also include new ones, such as torpedo-shaped signal emitters and transponders for simulating submarine torpedoes. We are now experiencing a growing trend towards a completely sensor-based submarine warfare waged primarily by acoustic means. Inter-submarine fighting is already totally dependent on sensors. This mode of combat will most probably dictate future submarine design.

The Outlook for Submarines

Concealment of submarines must be supplemented by mobility. Long endurance, high cruising speeds and superior manoeuvrability enable attack submarines to move into firing positions and take evasive action in an ASW environment. The combination of nuclear propulsion with 'tear-drop' hull-shaping and life-support systems has led to the creation of genuine underwater vessels, whose operational range is limited only by the physical stamina of the crew. This not only permits far-reaching counter-ship and counter-submarine operations but also ensures mobile deployment of a major part of the strategic nuclear arsenal, concealed from continuous monitoring. Because of their mobility, submarines carrying ballistic missiles are far superior to other modes of underwater deployment, such as fixed or mobile launching pads. Therefore the stationing of nuclear weapons on the sea-bed was abandoned in favour of an arms-control agreement.⁴ Nuclear-powered attack submarines constitute the maximum mobile threat to other nuclear submarines (for example, the *Los Angeles* class, with its maximum submerged speed of over 30 knots).

Submarines with strategic missions are primarily nuclear-propelled. Diesel submarines equipped with a snorkel are increasingly liable to detection. But the development of non-air-breathing, non-nuclear propulsion systems is by no means exhausted. Electric propulsion systems powered by fuel cells or a compound of the Walter and the Stirling engines may lead to considerable advances in quietness. These alter-

⁴ The Seabed Arms Control Treaty of 11 February 1971, signed by 67 countries, including the United States and the Soviet Union.

natives are particularly suitable for small, very silent submarines (mini-submarines) operating in shallow coastal waters.

As long as submarines can launch surprise attacks, the (wire-guided) acoustic homing torpedo remains their most cost-effective weapon. However, torpedoes may have reached the ultimate stage of their development (with speeds of 50 knots, and ranges of more than 50 kilometres). Anti-ship missiles provide longer ranges and a higher speed of weapons delivery (cruise missile ranges vary between 20 and 400 kilometres), but the submarine needs to surface in order to fire them - a limitation which can only be overcome by developing underwater launch techniques. Nevertheless, tracking and real-time gathering of targeting data may create additional problems if long-range weapons are used against mobile targets. Even homing weapons cannot always allow submarines to remain outside the ASW perimeter. If the submarine is to be kept from being exposed, a gap in its long-distance target acquisition can only be filled by external means like airborne relay stations, but it may be difficult to protect them. This being the case, attack submarines could be outranged by highly mobile platforms and long-range ASW ordnance, for example a combination of missile plus homing torpedo (*Ikara*) or depth charge (*SUBROC*).

The vulnerability of submarines to direct attack has so far rendered very close defence almost impossible. Today, however, short-range guided missiles with periscope launchers are being developed, which might be an effective defence against helicopters and hydrofoils. Strategic missile submarines with special mission profiles incur far less danger than anti-shipping submarines. A submarine-launched ballistic missile (SLBM) system, though more expensive, is also much less vulnerable than fixed-site ballistic missiles or strategic bombers, and at present a large number of them will survive even a co-ordinated attack. This certainly enhances the deterrence role of sea-based strategic systems, since a successful surprise attack against them would have to eliminate all of them at the same time. Thus, in the future, submarine-based systems will be emphasized even more.

However, by introducing more hunter-killer submarines, a pre-emptive ASW capacity will gradually take shape, making hedges necessary

against the threat of increased attrition. Unlike counter-shipping submarines, ballistic-missile submarines, covering fixed targets, do not become less effective when they launch longer-range missiles from greater distances. This will certainly put more strain on any ASW capacity than an increase in diving depth, which quickly becomes cost-prohibitive. The concentration of nuclear potential on submarines has always been relatively high, and if attrition becomes a threat it would seem appropriate for it to be better dispersed. In this context it is noteworthy that, instead of protecting the nuclear capacity by out-distancing ASW, the new submarines (for example, the *Trident*-class) will have an even higher accumulation of missiles and warheads.

By not taking advantage of the ship's full-range capacity, the enemy's ASW area defence may be outmanoeuvred. Submarines need no longer pass through geographical choke points, like the Greenland-Iceland-Scotland passage, or dense threat areas (marginal seas), since their launching points can be in their own coastal waters. In addition, trailing by hunter-killer submarines will be complicated by the defender's own ASW cover concentrated in these areas. The Soviet Union, in particular, is taking advantage of this to offset her existing geostrategic disadvantages. Until recently she was capable of keeping no more than 30 per cent of her submarine-based nuclear potential in launching positions, compared with the United States' 50 per cent.

The objective of the United States is not only to extend the range of SLBM, but to improve missile accuracy as well. Higher accuracy permits the use of smaller nuclear yields, and in the future perhaps even conventional explosives. Today priority in American planning is being given to the employment of 'tailored' weapons, for example, by equipping hunter-killer submarines of the *Los Angeles* class with strategic SLCM. Because of the shorter range of SLCM (much less than that of *Polaris/Poseidon*), their launching areas will be very restricted, but it is highly questionable whether it can be considerably increased. This would result in the submarines not being able to follow the trend towards launching from long ranges and would force them to operate within the enemy's dense ASW environment.

Anti-submarine Warfare

ASW development is always geared to increase the attrition rate of submarines. Since no revolutionary improvements can be expected in the sonar and weapons field, hunter-killer submarines will be improved through advances in software. In particular, rationalization of techniques should improve tracking capacity. But it should be borne in mind that the most important progress in submarine design – integrating nuclear propulsion, 'tear-drop' hull-shaping, life-support systems, electronic equipment and weapons systems – has already taken place and that further improvements will come at a declining rate.

Effective ASW aims to maintain an extended point defence around ships, as well as a supplementary area defence, denying submarines access to extended ocean areas. The trailing of ballistic-missile submarines can also be supported by an ASW area defence. Defence of ships against submarine attack is best accomplished by a combination of ships, helicopters, fixed-wing aircraft and hunter-killer submarines. Ships can be fitted with especially powerful sonar equipment (i.e., hull-mounted active sonar and variable-depth sonar). Ship-based helicopters (and carrier-based aircraft) can increase the ship's ASW defence perimeter considerably. Helicopters and their tracking devices (i.e., dipping sonar and buoys) cannot be observed from underwater. Aircraft are a fast and far-ranging means of mounting independent ASW operations and, like hunter-killer submarines, can be used for anti-strategic-submarine warfare. However, they are either land-based or stationed on expensive carriers and are limited in number – at least until a cheaper alternative, such as short take-off and landing aircraft based on small carriers, is put into service. But the most important, as well as the most effective, anti-submarine weapon is the hunter-killer submarine operating independently – particularly if it is available in sufficient quantity to maintain a continuous trailing capacity.

Ocean straits and off-shore areas are suitable for stationary – mainly automated – submarine defences. Large, fixed acoustic arrays can carry out long-range surveillance. Sophisticated sub-surface installations ('sonar fences') gather more dependable results than drifting buoys, although these have been considerably improved. Major barrier lines dotted with mines releasing acoustic

homing torpedoes (CAPTOR mines) can be expected in the not too distant future.⁴ The main threat to missile-carrying strategic submarines can be expected to come from hunter-killer submarines, particularly if sufficient numbers are available to maintain a continuous trailing capacity. A combination of hunter-killer submarines and ASW defence installations would be most effective of all, but would be very expensive.

Final Remarks

By continuing to develop maritime technologies, the major powers could be stimulated to follow the far-reaching strategies towards which working at the limits of technology will necessarily lead them. The traditional mobility of naval forces, for example, is being superseded by dense and extensive missile networks. Combat zones can grow ever larger, depending on further improvements in target acquisition and action correlation, and launching capabilities are considerably extended by the multi-basing of weapons systems (for example, missile-equipped ships, submarines, aircraft, etc.). Missiles can therefore be concentrated in huge combat zones which an opponent will hardly be able to avoid. Ships, in particular, are almost always within reach of homing weapons and thus face a high risk of attrition, especially in the case of surprise attacks at the beginning of a conflict; consequently, protecting them will demand a high degree of readiness. Sophisticated systems will be required for monitoring these combat zones, and may even include satellites.

If the attrition rate of missile-carrying submarines should increase in the long run, it could at best be used in support of a damage limitation strategy, but an extremely high (and incalculable) risk will in any case remain.

Development of maritime technologies tends to promote symmetry in the super-powers' maritime potential. At all costs a fetishism in terms of high technologies must be avoided. High-low mix concepts will dilute too ambitious an approach. But what is even more important is that the human factor remains decisive and will, finally, prove the usefulness of new maritime technologies.

⁴ CAPTOR mines unquestionably constitute a major breakthrough in mine warfare. They rationalize the use of mines by combining the advantages of a fixed platform moored at a considerable depth and a weapons system covering rather extended areas.

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Executive Summary

INTRODUCTION

The Panel on the Implications of Advancing Technology for Naval Aviation was established at the request of the Chief of Naval Operations (CNO) on January 16, 1980. The task of the Panel was to consider the Navy's current patterns of naval warfare involving naval aviation together with evolving relevant technology, and to derive from this:

- o Recommendations concerning the most important technical trends to assist the Navy in developing its future R&D programs,
- o Suggestions for new systems concepts made possible by expected technological advances that would enhance the effectiveness of the Navy.

The Panel confined itself to the extrapolation of ideas and capabilities now known, and refrained from forecasting future scientific discoveries or inventions.

The CNO also asked the Panel to address three more specific questions:

- o What should be the future forms of the carrier?
- o What might be the impact of V/STOL on the carrier and the form of the Navy?
- o What might be the impact of cruise missiles on the Navy?

In spite of the fact that nuclear, biological and chemical warfare technologies are not normally considered in "aeronautics," the impact of such technologies on aeronautical systems was of such importance that the Panel probed this field as well.

In approaching the general and specific questions the Panel has not attempted rigorous analysis, but rather has concentrated on developing and examining the technological trends it believes are sound, and on describing system implications so that the Navy can better focus its future, more rigorous studies and investigations.* In addition to analysis efforts the Panel believes that there are important, experimental development programs that are essential to carry these new concepts further and to put them into practice.

NAVAL AVIATION MISSIONS

The missions of naval aviation which were addressed are those already defined and accepted: to assist in the U.S. and allied use of the seas, control of the seas in wartime, and the projection of military power ashore. These broad mission areas include the following specific military tasks in which aviation participates: acquisition and distribution of intelligence; attacking enemy surface ships and submarines; attacking targets on land; defending friendly assets (of all kinds) at sea; landing ground and air forces from the sea; and defending friendly forces and related assets ashore or over enemy territory.

These military tasks may be carried out against a spectrum of opposition varying from third countries to Soviet forces. Thus, although the Navy may operate against lesser threats, it must be designed with the maximum threat in view.

THE THREAT

The main, and growing, threat to the Navy at sea is from missiles. Missiles can be launched from the air, from the surface, and from under the sea. Future missiles can be expected to have longer ranges and to approach their targets from unexpected angles, at high speeds with short intercept times, utilizing saturation tactics. The Soviet Navy is now supported by a worldwide information and tar-

*This report represents a summary of the findings produced by some five task groups. For those who are interested, the working documents are available in the office of the Naval Studies Board.

geting system, which will inevitably improve in the future. Delivery platforms will be able to approach U.S. ships from 360° azimuth, wherever they are. The long reach of the threat and the short time available to react will mean that our current long-range defenses, such as F-14/PHOENIX, will no longer be able to reach the launch platforms, and shorter range defenses in heavy ECM environments can potentially be saturated. Longer defense reach and shorter response time are essential.

The Panel believes that the present missile threat has already forced the Navy to bias its aeronautical resources toward defense of the battle group to the detriment of its offensive capability. If new technologies and the resulting systems concepts can assist the defense of the fleet and free more aviation assets for offensive missions, a major contribution to Navy effectiveness will have been achieved.

Ashore, attack aircraft will face increasingly capable missile-firing air defenses that, if undefeated, will cause more attrition of attacking aircraft than is tolerable. These defenses may be Soviet, or furnished by the USSR, or even by the U.S. or its allies, to third countries. Thus, any land-attack mission concept must include elements to find and defeat defenses in the target area.

WHERE COULD AVIATION TECHNOLOGIES LEAD THE NAVY?

To fulfill its task the Panel found it necessary to consider technologies and operational functions beyond "naval aviation" as strictly defined. The strong systems nature of evolving technology makes it impossible to consider aviation without examining the ways in which it is embedded in the larger Navy. Indeed, the Panel concludes that it is the nature of the embedding that best defines the technologies that will shape the future Navy.

Naval aviation is, by its very nature, a dispersable force. Advances in nearly all traditional aeronautical technologies now require a system structure that takes better advantage of its dispersability than current Navy systems do. The evolving threat makes this dispersal essential; it is propitious that evolving network and supporting technologies make it possible.

Implicit in success of such a dispersed force of ships, aircraft, and missiles is the effective flow of signals within and from without the battle group and the ability

of this command structure to be disguised and made more difficult to find and attack effectively.

R&D in those technologies which promise significant advances in naval aircraft is important and should be continued. However, the major contributions of technology to "naval aviation" in the broad sense will not be in the traditional technologies of aircraft, airframe, propulsion, etc. Existing and planned naval tactical aviation airframes, the F-14, A-6, and F/A-18, continue to provide adequate platforms for the tasks envisioned. The leverage of technology will accrue in the application to surveillance, sensors, communications, computation capability, new and improved weapon systems and weapons guidance and control. Even more essential will be the demand for total system integration and control which will require advanced data handling and presentation for effective command. Thus the key technologies are in electronics and electronic systems rather than the traditional fields supporting engine and airframe development.

There is, however, an important caveat. The Panel fully expects the emergence of airframe and engine advances which from time to time will permit significant advances in existing airborne assets. This same technology may be applied to offensive and defensive missiles to produce operational ranges of hundreds rather than tens of miles. Similar traditional technology growth will make feasible sensor-carrying aircraft that can stay aloft for days. Finally, the operating radii and payload capability of V/STOL aircraft will continue to increase.

To support both missiles and specialized aircraft, the Panel is convinced that substantially smaller surface ships can be built with rough-water stability and speed comparable to a big-deck carrier. The ship concept which appears most suitable for support to the carrier battle group appears to the Panel to be the Small Waterplane Area Twin Hull (SWATH) ship. The surface effect ship (SES) also appears to have capabilities that could augment independent Surface Action Groups or over-the-beach effectiveness including capabilities as a launch platform for V/STOL assets in support of landing operations.

Thus, the Panel found it impossible to think about the core of naval aviation--the carrier and its aircraft--without also thinking about the missiles that are becoming the primary warhead delivery vehicles, the platforms they are launched from, the information network that ties all these components into a functioning whole, and the aircraft, spacecraft, sensors, and communications links that

make up the physical components of that network. All these were treated as parts of naval aviation in the study, and they are so treated in this report.

THE BROAD CONCEPTS

The Panel is convinced that technology is available, and the developing threat makes it imperative that the Navy pursue operational concepts in which there is a wider dispersal of carrier battle group assets than would be feasible with currently planned surface and airborne elements. The directions for development that will both control this evolution and capitalize on the opportunities it offers are listed here.

1. Most important is the information network, including intelligence, on which the entire naval structure will depend. This includes sensors, communications, command structure, data handling and presentation to the command (with emphasis on real-time presentation), and provision for denial of information or confusion of enemy forces. This is the "nervous system" of the naval "corpus," without which it will not be able to function.

The Panel further emphasizes that deception, jamming, third-party communications links, and other means of foiling enemy targeting and guidance will be an essential part of this information network. Maintaining a decisive information advantage is as important as obtaining and using information per se.

2. Next in importance is the design and development of families of missiles of much longer range than presently planned systems. There should be longer range missiles for all purposes (AAW, ASW, ASUW, and land target attack). Because of the extended range of these missiles, a "forward-pass" mode of guidance should be utilized in which target localization information and even fire control signals can be passed to a missile by a "third party," probably airborne or spaceborne, regardless of the launch platform for the missile. The potential third-party sources for control or update of these weapons can be widely distributed over the force engaged in any action.

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3. Given the above systems, provision is needed for a heavy ammunition (missile) load, distributed among many surface and subsurface elements of a task force. These missiles would be called up and controlled by the "nervous system," through various airborne systems utilizing a multiplicity of target intelligence sources in the C³I loop. The missiles themselves, of course, should be capable of precision delivery. Simply adding to the number of any inaccurate weapon is of little value.
4. In addition to missile complements on existing carrier battle group ships, there is both need and opportunity for provision of diverse new platforms that can be small enough to be economical, yet maneuver with the carrier in heavy weather. These include:
 - a. SWATH, missile-carrying ships, some of which may be air capable.
 - b. SES ships to act as air-capable auxiliary ships suitable for rapid over-the-beach and roll-on-roll-off deployment and other support operations.
 - c. V/STOL aircraft able to operate as sensor and missile control platforms from the above ships, and others suitable for combat and transport missions in amphibious operations.
 - d. Long-endurance sensor-carrying aircraft, which may or may not be manned or even ship-based, to comprise a part of the Navy's total information and control network, along with other airborne and space-based assets.

From the above developments, naval task force structure (and the aviation within it) is visualized as evolving not only toward greater distribution of information and combat assets over all elements of the fleet, but also toward covering much larger geographic areas, including ocean and land, than has previously been operationally feasible. Force size and ship spacing will be highly variable with the circumstances of the battle and the character of the opposition. The force spacing should be determined by the information umbrella, the reach of the offensive and defensive weapons, and the span of control over these weapons and their launch platforms. The technology is and will be available to disperse the task forces as far as appears to be optimum for fleet effectiveness.

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ANSWERS TO THE ORIGINAL SET OF QUESTIONS

The preceding outline of technical developments and opportunities leads to the following answers to the more specific CNO questions:

- o What will be the future form of the Navy, especially with regard to aviation? It will have many of the same components we know about today. For the foreseeable future the carriers themselves and the tactical aircraft (F-14's, A-6's and F/A-18's) they are programmed to carry will remain essentially the same. However, as described above, technological ideas on the verge of exploitation are likely to add new components and to make it possible for "the Navy" as a collection of ships, aircraft, missiles, sensors, and connecting links to function quite differently, in an operational sense, than it does today. In effect, a carrier battle group will increasingly operate as an integrated, distributed weapon system supported by major C³I assets, some organic and some external, and can have a substantially larger radius of effectiveness for approximately the same number of surface elements that now constitute a carrier battle group.
- o What of the large carrier? We have concluded that it need not change much, if at all. Under the dispersed concept we have described, the carrier concentrates, as it should, more on its classic function as a floating airbase for high sortie rate offensive aviation operations in areas where land-based tactical aviation is not available, tasks for which the large-deck carrier and its multi-role airwing are especially efficient. The most marked change in naval ships that we see would occur in combat ships other than carriers. These ships would be primarily missile carriers that can keep up with the big decks in heavy seas--an essential requirement if the carrier battle group is to survive high-speed transit while under threat. Some of these ships could be air-capable to launch sensor-carrying aircraft for target localization and forward control of long-range missiles. New ship design concepts, particularly SWATH, can provide this capability. Similarly, ship concepts such as the improved high length-to-beam ratio SES

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will be able to provide fast-deployment, air-capable amphibious assault and combat air support more effectively than current conventional designs.

- o What of V/STOL? This capability will not drive the form of the naval aviation system, but the evolving technology offers an opportunity, in combination with other developments in information, ships, and weapons, to fulfill an expanded tactical role.

The ability of a V/STOL-capable aircraft to fly off various battle group combatants in either a based or a staging mode, higher, faster and farther than helicopters, could provide a carrier-independent surveillance, targeting, and fire control capability for AAW, ASW, ASUW, and overland targeting applications. The capability to base such aircraft on new SWATH or SES ships enhances the offensive power of large aircraft carriers by reducing the traffic demands of support aircraft on the scarce deck facilities and space. These advantages should be aggressively explored and quantified in the near term to provide the basis for long-term planning.

- o The impact of cruise missiles. The impact of precisely guided cruise missiles in attack on ships by both sides demands U.S. defensive reaction against submarine and BACKFIRE launch threats. Range improvements in air defense, ASW missiles, and land and ship attack missiles lead to the dispersed and distributed operational concepts described. Missiles for land attack permit destruction of defenses and high-value fixed targets so that manned aircraft can seek out and attack mobile land forces that may be the main elements of concern in a conflict. The possibility of using such missiles enhances interest in the performance potential of new ship types. The resulting long reach adds emphasis to the need for the expanded information network described. Thus, in many ways, cruise missiles prove to be one of the main agents of change in the Navy and specifically in naval aviation--indeed, the cruise missile concept is the reason the Panel had to define "naval aviation" as broadly as it did.

The Panel also notes that conventional-warhead ballistic missiles may become similar agents of change and concern in the latter part of the period

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we are considering. The Navy should closely monitor developments in this area, particularly with an eye toward earlier introduction.

NBC AND DIRECTED ENERGY WARFARE

Soviet doctrine lays great stress on these areas of warfare, and the Navy, for deterrence and for survival if deterrence fails, must prepare to meet the Soviet threat. The "information war," especially including information denial and confusion, appears to us to offer the best defense against nuclear attack since the chance is high that at least one attacking weapon can reach a major ship whose location, movement and activity are known. Beyond this, the following measures are strongly indicated:

- o Assess and correct as appropriate or required the EMP vulnerability of naval aircraft, combat systems, and vital C³.
- o Ensure the existence of an appropriate nuclear and binary chemical retaliatory capability.
- o Ensure that electro-optical/optical systems are provided with protection against directed-energy weapons.
- o Develop and provide appropriate personal protection gear and decontamination equipment to permit flight-deck operations subsequent to CW contaminating attack.
- o Provide flight crews with protection against flash-blindness.
- o Provide for chemical protection of other ships by such measures as scrub-down and positive-pressure ventilation, to the extent feasible.
- o Incorporate such protection measures fully in any new ships to be considered. The cost of complete retrofit is recognized as prohibitive, but incorporation of such features in new designs is believed to be both essential and affordable.

IMPORTANT APPLICATIONS OF NEW TECHNOLOGY

This review of naval aviation needs and prospects has highlighted many areas of technology application requiring attention or offering opportunities for future exploitation. The Panel has tried to select the most effective

of these broad concepts and has listed them in the order of importance to the future Navy.

Each of these concepts, if successfully pursued, will depend on basic programs of system and subsystem studies and development that should be an essential part of the Navy's continuing R&D effort along with basic research and engineering exploration to build the total technical base. The Panel's suggestions for emphasis in supporting system programs and R&D follow this priority listing of applications.

1. A network of diverse sensor/information sources and interconnecting communications, to maintain full knowledge of enemy forces' whereabouts and activities and to send guidance and fire control signals to long-range missiles, should be built. ITSS is already in the planning stages and could provide a basis for this network. Of special importance are the following:
 - o Sea-, air-, space-, and land-based sensors, platforms, and integration/processing centers.
 - o Low-probability-of-intercept among those communications nodes.
 - o Reduction of vulnerability to enemy jamming and exploitation, increased attention to hiding/spoofing/masking signatures, i.e., electronic warfare in the broadest sense.
 - o Reduction of sensor and seeker vulnerability to directed-energy weapons from space, airborne, or surface systems.
 - o The same attention to surveillance and target-acquisition systems for land attack and ASW as is given to air defense and surface attack.

Particular emphasis should be placed on methods of target acquisition and communication that will not disclose the presence of platforms that may be otherwise shielded from observation. For this reason, as well as the advantages of closer approach to the targets for localization, the forward-pass mode of targeting and guidance of long-range missiles is indicated.

2. Implicit in the successful creation of such a C³I network is the availability of suitable platforms for acquisition and relay instrumentation. Military satellite systems will be important and per-

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haps primary elements, but airborne systems will continue to provide platforms to support these functions. Airborne platforms, particularly those which are organic to or under the control of the carrier battle group are generally more readily available to task force command. High-altitude, long-duration aircraft, either land- or fleet-based, also appear to the Panel to be essential. Land-launched platforms with days-of-flight endurance appear feasible.

3. New kinds of ships other than carriers, to function primarily as missile ships able to keep up with carriers in heavy seas, and designed to expand the combat radius of the carrier battle group (AAW, ASUB, ASW, and some land attack).
 - o The Panel believes that SWATH designs offer the best combination of characteristics for this purpose.
4. Surface-launched, air-targeted (SLAT) missile systems of several hundred miles range should be designed for installation on these ships for anti-air warfare and for ASW, extending the range of fleet defense.
 - o The SLAT concept for missile guidance can also apply to subsurface-launched weapons. It is, therefore, recommended that such missiles be capable of submarine and subsurface launch.
5. Long-range (e.g., 300 to 1000 mi, depending on payload) cruise missiles for attacking sea targets, land-based tactical air defenses, and other land targets should be developed that are smarter (i.e., more effective in a countermeasures environment), cheaper, and more numerous than currently planned systems for these purposes, integrated with the above information and control network, and capable of launch from diverse Navy ships. These long-range missiles will also benefit from target information from both airborne and space platforms and should be capable of accepting third-party target inputs or guidance.
6. Long-length, narrow-beam SES ships appear to offer major gains in capabilities for roll-on-roll-off and other assault duties. Such ships appear to

offer substantial improvements in support of air elements for across-the-beach support.

ESSENTIAL PROGRAMS TO SUPPORT APPLICATIONS

1. Operational concepts, tactics, and strategy for using these new systems should be developed and tested. This implies a new look at operational concept evaluation utilizing modern analytical methods coupled with operational simulation of new weapons and systems.
2. The Navy must be concerned about nonnuclear ballistic missile attack on our ships and about special risks of NBC warfare, with collateral or even primary effects such as EMP, and begin planning to meet these threats with special emphasis on incorporating countermeasures in new ships, aircraft, and systems.
3. Emerging technology for greatly increased--in fact, a whole new concept of--reliability must be consciously developed and used. The cost of doing so will be more than returned by the gains in decreased logistics tail, manpower, reduced system failures, and actual lowered cost of individual weapons if adequate control of initial specifications is included as an essential part of the Navy's search for reliability.
4. The same technologies that make possible the network suggested as "priority one" offer new practical opportunities to develop advanced control systems, and automation for drastic reduction of manpower in operating new ships and combat systems.
5. Advanced electric propulsion (drive) subsystems for ships offer design advantages that can capitalize on item 4, above, and provide other inherent efficiencies.
6. Exotic fuels for extra-long-endurance aircraft and ships, e.g., liquid hydrogen.
7. Ballistic missiles designed to attack enemy ships and other targets should be continually studied to seek advantageous applications and clues to defense systems should the potential enemy deploy them. The concept of MIRV'd warheads for such missiles must not be overlooked.

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BASELINE TECHNOLOGIES

The system concepts and supporting programs enumerated above are all based on an adequate and sound foundation of supporting R&D. This must be continued at a consistent pace in order to make these new concepts feasible and should be done as necessary R&D even if current circumstances indicate delay in procurement. Specifically:

1. General weapon guidance R&D, including mid-course and terminal guidance for sea, undersea, and land attack, must be continued along with technology development to support some form of the forward-pass concept explicitly recommended.
2. The basic aeronautical technologies, aerodynamics, control-stability, structures, and propulsion which now make advances in V/STOL feasible and which would permit increases in the endurance of high altitude aircraft must be fully supported.
3. More effective warheads for all purposes.
4. Guidance concepts for direct aircraft-to-aircraft combat.
5. Better ship and ship system design for damage control and secondary damage amelioration.
6. Progressive improvement in ship design concepts for vessels smaller than current carriers to improve rough-water stability at carrier escort speeds, thus providing reasonable-cost missile and aircraft basing for specific missions.
7. Sturdiness and adaptability of all electronic elements and systems to achieve "iron box" reliability and "hands off" long life and constant readiness.

THE TRANSITION FROM HERE TO THERE

Technology will show strong indicators but will not, of itself, cause the major changes in naval aviation envisioned by the Panel. The Navy must decide to follow those indicators and go that way. The Panel believes that if naval aviation does not evolve to take advantage of its inherent capability for a broader dispersal of force it will not be serving the nation as well as it could. The Panel does not suggest that it is possible to design a system such as the one described in one step: procure it all, field it all simultaneously, and expect to have it work. Such a total system must be approached

as a planned evolution, using exploratory operations in which elements of these concepts are introduced, tested in the operational field, and then incorporated, where reasonable, into existing assets or new system designs. The Navy should reevaluate its capability and organization to experiment and explore system possibilities to develop advanced requirements, and test their utility by the operators in an operational environment. Once satisfied that the technologies will be available and the operational concepts rational, a final commitment can be made for new systems and approaches. It will be especially important to develop, by experiment, the sturdiness of the information and control network and the potential effectiveness of deceptive techniques and tactics, to make certain that the ultimate system concept can withstand severe hostile action. Graceful degradation of the network under stress is a vital design consideration.

This exploration can be done at a reasonable cost. Full ITSS capability, SWATH ships, and V/STOL or days-of-endurance aircraft are not essential for exploring some of the concepts for forward-pass operations; simulations with E-2C's, helicopters, and temporary electronics installations are possible. A few missiles can be devised for use with separate control aircraft for simulation and trials. By this process the Navy can begin to see the promise and the difficulties and experiment with possible solutions, thus refining the concepts while building rational requirements. A parallel program can explore superreliability concepts and evaluate possible logistics, production, dollar and manpower savings.

It must be emphasized that the entire evolution cannot be accomplished with simulation alone. It will be necessary to build and operate some new conceptual equipment as part of the operational fleet in order to gain experience and build confidence in the Navy and supporting communities. This element of the evolution will necessarily take time and money but it should be initiated soon or the total system will be delayed even further than the decades it will take under the best of circumstances.

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More than 30 years since our last clear military victory, America's armed forces, argues a Senate advocate of military reform, are bogged down in bureaucracy, obsolete theories and cumbersome weaponry.

WHAT'S WRONG WITH THE MILITARY?

By Gary Hart

There is an anecdote about a conversation in the mid-1930's between the French Prime Minister, Leon Blum, and Charles de Gaulle, then a French Army colonel. The future leader of France reproached Blum about the state of the country's defenses.

Blum was nettled. "But we are spending more for defense than the previous Government!"

"It is what you are spending it on," de Gaulle said, "that I want to discuss."

What they were spending it on was bigness. The French had the largest — and, by most accounts, finest — army in the world. They underwrote huge military budgets. They constructed the most massive defense installation since the Great Wall of China — the Maginot line.

And when World War II came, all of it collapsed. Hit by the German blitzkrieg of 1940, the French would try to seal off a panzer breakthrough by forming a new defense line 10 miles to the rear — only to find that the Germans had bypassed it already. Twenty, 30, 50 miles back — it made no difference; the Germans were always beyond the new defenses before the French were ready. The situation continued to deteriorate at an ever-increasing pace, until the French, recognizing their inability to react in time, gave up.

What had happened? In his book "To Lose a Battle," Alistair Horne puts his finger on the essential reason. Realizing that, in combat, ideas were at least as important as weapons, the Germans had overhauled their strategic and tactical doctrines of World War I. The French General Staff, on the other hand, "allowed itself to become bogged down in bureaucratic method; paperasserie, as

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the French call it, the blight to which all armies are susceptible, flourished. It was difficult to see where the power of decision lay. . . . There was not much discussion on a higher strategic and tactical plane, and what there was tended to follow abstractly intellectual paths from which little practical ever emerged."

After seven years on the Senate Armed Services Committee, I am convinced that we are well along the road to repeating the French mistake. It has been more than 30 years since the last clear-cut American victory, the brilliant and audacious landing at Inchon. Vietnam, the Pyrrhic victory in the Mayaguez affair and the failed Iranian rescue attempt all attest to some deep-seated problems in our armed services. Yet our national defense debate, in Congress and in the press, continues to revolve largely around how much to spend. New ideas, from inside or outside the services, are seldom heard and less often welcomed.

A growing number of my Congressional colleagues have come to feel that there is something profoundly wrong. We have joined in what amounts to a military reform movement, an alliance of (mostly younger) military officers, civilian defense analysts and members of Congress. The reformers' goal is to bring our defense priorities back into line with what history tells us is important in winning — and, therefore, deterring — wars.

In seeking to determine where we have gone wrong, we must start by looking at the basic building blocks of any military — (1) personnel, (2) tactics and strategy and (3) hardware.

Personnel questions are usually discussed in terms of pay, service entrance tests, and so on. But these issues miss many of the most critical aspects of military personnel policy.

One such issue is unit cohesion, the psychological bonding between individuals that takes place within the small, basic unit — the fire team, the squad, the aircraft crew, the ship's section. In the stress and chaos of combat, people fight less for "king

and country" than for their buddies. If the person next to them is not a buddy but a stranger, they are more apt to sit out the fight or break and run.

Cohesion can develop only when a unit contains the same people for long periods. It takes time for strangers to come to rely on one another. Today, we do not provide that time. Many Army combat companies have a personnel turnover rate of 25 percent every three months, the highest in the world. So our troops remain strangers to one another, and strangers do not fight well together.

The present Army Chief of Staff, Gen. Edward C. Meyer, has recognized this problem. The Army is experimenting with ways to improve unit cohesion, such as adopting the British practice of having people spend their entire service career in a single regiment. These initiatives are vitally important if our All Volunteer Force is to succeed. Troops and non-commissioned officers are more likely to re-enlist in a regiment where they can continue serving with their friends. The more people re-enlist, the fewer new recruits we need.

When we look at tactics and strategy, we find that here, too, basics tend to be ignored. Our doctrine in this field is based on a style of warfare known as "firepower-attrition," the object being to destroy the enemy man by man, killing his troops and blowing up his equipment faster than he can do the same to us. We have fought this way for more than a century. The Union won the Civil War with firepower and attrition, overwhelming the Confederacy with more men and more guns, more supplies and more firepower. We rolled the same way over the Germans in 1918 and the Axis in World War II.

This style, however, is badly outdated. Firepower-attrition can work for the side with superior numbers, an advantage we no longer possess. We cannot overwhelm the Soviet Union with superiority in manpower and materiel. We need a different style of warfare — "maneuver warfare." Here, the object is to destroy the

enemy's cohesion — and the opposing commander's ability to think clearly — by creating surprising and dangerous situations faster than he can cope with them.

The German exploit in 1940 is a good example. So are most of the Israeli campaigns and Stonewall Jackson's Shenandoah Valley campaign in the Civil War. The Marine Corps is showing openness toward the maneuver concept; the Second Marine Division has proclaimed maneuver warfare as its doctrine. The Army is also beginning to show interest: Maneuver ideas are reflected in one segment of "Air/Land Battle 2000," a briefing for other services and members of Congress on the way the Army will fight in the year 2000. But the Army briefing is internally contradictory, most of it being devoted to further promotion of complex weaponry and linear defenses, while the Marine effort has largely been the product of local initiative.

A new way of looking at the nature of conflict has been explored in the work of a retired Air Force colonel named John Boyd. While still a captain, Boyd developed the basics for the system of air combat currently used by the United States. His ideas were influential in the design of the F-16, possibly the world's finest fighter plane.

Conflict, Boyd argues, is a matter of "observation-orientation-decision-action cycles," which each contending commander consistently repeats. First, the commander observes — not only with his eyes and ears but with his radar, reconnaissance, etc. He orients — that is, he forms a mental picture of his relationship to his opponent. On the basis of this picture, he determines a course of action — he decides. He acts. Then he begins observing again, to see the effect of his action.

The commander with the faster cycle will eventually win, because he is already doing something different by the time the enemy gets to the action part of his own cycle. The enemy's action becomes irrelevant. If one side is consistently faster, the margin of irrelevance keeps growing, until the enemy either panics or becomes passive. At that point, he has lost.

It stands to reason that rapid execution of the Boyd cycle requires commanders with boldness, imagination and initiative. Yet by and large, this is not the type of person being promoted in our armed services today. The cycle puts a premium on decentralization, since rapid decisions can be made only by the officer on the scene. Yet we are busy centralizing our command systems with the latest technology, so the President or a general in Washington can direct a platoon halfway around the world.

The Boyd theory has implications for military equipment as well. In research and development, as well as in procurement of new weapons, the changes made must be quick and major, so as to make the enemy's equipment irrelevant. (Continued on Page 40)

In our military establishment, the changes are far too slow. A major new weapons system can be 10 to 20 years in development. Our procurement policy favors weapons so complex and expensive that we must keep them in service for decades to get our perceived money's worth. The Navy, for instance, has built itself around the big aircraft carrier for more than 30 years.

And much of our equipment is too complex to work well on the battlefield. Look, for example, at the Army's new M-1 tank. It has all the technology money can buy — a gas turbine engine like an airplane's, a computer to control the gun, special layered armor to stop enemy antitank missiles. But it has to stop for repairs every 43 miles; the engine eats up so much fuel that it gets only one mile for every 3.86 gallons; the troops often cannot even operate, much less maintain, the computer, and the armor is ineffective against shells fired by enemy tanks. Is it really an improvement over the proved M-40 tank, which costs half as much?

Pentagon spokesmen have taken to calling this a debate between quality and quantity. They portray the services as supporters of quality, wanting only the finest weapons for our soldiers, sailors and airmen. They argue that this necessarily leads to very costly, very complex weapons — the M-1 tank, the F-15 fighter, the big nuclear aircraft carrier. By contrast, they label the military reformers as people who are willing to accept inferior weapons in order to buy more of them — or, sometimes, simply to save money.

In fact, the real debate is between two different definitions of quality. The Pentagon defines quality in technical terms: High technology equals quality. The military reform movement defines quality tactically, in terms of the characteristics that are most important in actual combat. That definition leads the reformers to emphasize such characteristics as:

- Small size. Often, being seen means getting killed.

- Reliability, ruggedness and ease of maintenance. Fragile equipment is soon out of action.

- Rapid effect. Our highly touted antitank missiles, to cite one shortcoming, require the gunner to guide the missile for about 20 seconds, a very long time when someone is shooting at you.

- Numbers. In tactical terms, quantity is an important quality. A navy that depends on only 13 ships — our 13 large aircraft carriers — is a vulnerable navy. The finest fighter plane in the world is in serious trouble if it is outnumbered three to one or five to one by enemy fighters.

The same characteristics that give a weapon tactical quality — small size, simplicity, ruggedness — also tend to make it cheaper. Thus, the practical choice is not between quality and quantity but between technological quality in small numbers and tactical quality in large numbers. In other words, in most cases we can choose between a small number of weapons likely to be unreliable in combat and a large number of more effective weapons. Current Pentagon policy prefers the former.

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Where have these misguided policies come from? To answer that question, we must confront some serious problems in the military education and promotion systems.

All organizations need a balance among several different types of abilities — leaders, to motivate other people to overcome obstacles; managers, to organize procedures and processes, and theorists, to determine

what the product should be. In a military service, the theorist's role is particularly important; it is the theorist, more than the leader or manager, who understands the art of war as a whole.

Unfortunately, in our armed forces today, these three roles have gotten badly out of balance. Our military educational institutions too often stress management, not leadership or theory. A cadet can graduate from West Point or a midshipman from Annapolis with only a one-semester course in military history. As one cadet recently wrote, "Cadets are not trained to think and lead, but rather to respond and manage, a situation that we find deplorable."

A few of our military colleges have begun to teach about warfare. The Naval War College reformed its curriculum several years ago to give greater attention to history; the students now begin by reading Thucydides. The Air Force Academy has just added four semesters of "military studies" to the one-semester history course. The Marines' Amphibious Warfare School has begun teaching maneuver warfare, thanks to the initiative of a single lieutenant colonel.

But in other schools, students are likely to pass through the entire curriculum without even hearing about issues such as style of warfare. Several years ago, at the Marine Corps Command and Staff College, only about a dozen students signed up for the military-history elective; several times that number preferred aerobics and running. The Army's Command and General Staff College at Fort Leavenworth has just expanded its physical-education program; to make time for it, the military-history reading requirement was reduced from 10 books to only four.

Neither gym class nor electrical-engineering nor management courses are likely to help produce new George Pattons. General Patton, himself a lifelong student of military history, once wrote to Maxwell Taylor, then Superintendent of West Point, "I am convinced that nothing I learned in electricity or hydraulics or in higher mathematics or in drawing in any way contributed to my military career. Therefore, I would markedly reduce or wholly jettison the above subjects."

Poor education in the military schools is reinforced by poor training in the field. To become an expert in tactics, a commander needs to spend time in free-play exercises, where he faces an opponent who is trying to surprise, confuse and defeat him. Instead, most of our exercises follow rigid scripts, where everyone knows well in advance what he and his opponent will do and when. It is more like ballet than war. It is management, not leadership or tactics.

The promotion process further reinforces the manager's predominance. "Efficiency" and "zero defects," the hallmarks of the successful manager, are the best tickets to success. Yet the leader and the theorist seldom meet the "zero defects" test. Their imaginative approach to problems naturally leads to some mistakes, and the promotion system punishes them for these mistakes without rewarding them for innovation. So problems persist and grow, with the underlying reasons often unrecognized and the proffered solutions largely conventional and uninspired.

How did this situation come about? To some extent, the question answers itself: If the military schools do not provide an education in the art of war, and if those who educate themselves and act on their knowledge are not promoted, there will be few at the top to see the need. But that is not the whole answer. We must look deeper still, into how our armed services function as institutions.

There are essentially two institutional models, the bureaucratic and the socialized. In bureaucratic organizations, individuals focus on doing their jobs, defined in narrow "in-box, out-box" terms. This model has become typically American. We see the attitudes it produces in the paper-pushing bureaucrat, the Congressman or Senator interested only in getting more grants for his own district or state, the assembly-line worker who watches the clock instead of the quality of his work, the executive seeking laws to throttle foreign competition instead of improving his product.

And we see it in the military. Adm. Elmo R. Zumwalt Jr., the former Chief of Naval Operations, has described some of the ways it works in the Navy. For the last quarter-century or more, he writes, "there have been three powerful 'unions,' as we call them, in the Navy — the aviators, the submariners and the surface sailors — and their rivalry has played a large part in the way the Navy has been directed. . . . Whichever union a commander comes from, it is hard for him not to favor fellow members, the men he has worked with most closely,

when he constructs a staff or passes out choice assignments. It is hard for him not to think first of the needs of his branch, the needs he feels most deeply, when he works up a budget. It is hard for him not to stress the capability of his arm, for he has tested it himself, when he plans an action."

The bureaucrat's narrow focus leads him to believe that the success of his small group within the organization is more important than the goals of the organization as a whole. The socialized model, on the other hand, defines an individual's job quite differently. It seeks to persuade all who work within the organization to focus on its overall objectives.

This is the approach used by such successful corporations as Toyota, Datsun, Sony and I.B.M. A professor from Tokyo University gave an example in a talk at Stanford. He told of a San Francisco bank that had been doing poorly and was bought by a Japanese bank, which sent in new Japanese management. The American employees said, "Tell us what to do differently." The Japanese set forth the values and goals of their bank. The Americans said, "That's all fine, but tell us what to do." The Japanese continued to explain the values and goals of their corporation.

The Americans, who wanted detailed instructions, were resentful at first, and productivity fell still further. Finally, they came to understand that they were to use their own intelligence and initiative — not only within their narrow jobs but in everything they could do — to further the bank's goals and values. Productivity rose dramatically, and the bank became one of the most successful in the city.

At one time, our military services used this philosophy. But the Army, since its expansion in 1940, has increasingly hewed to the bureaucratic model; the Air Force adopted that model when it separated from the Army, and the Navy has been vacillating between the two approaches. Today, among our armed services, only the Marine Corps is committed to the socialized model. Not surprisingly, the Marines are the service

ideas, such as maneuver warfare and light, simple armored vehicles.

Bureaucratic behavior thus lies at the core of America's military inadequacies. It is a far more fundamental problem than the budget level of any given year. War demands rapid change, to present the enemy with the baffling and the opaque, resolving quickly into the surprising and dangerous. But change is bureaucratically uncomfortable; it upsets the existing arrangements, the traditional fiefs. In industry, bureaucratic behavior leads to bankruptcies like that of Penn Central. In government, it leads to massive waste. In war, it leads to defeats such as Austria's humiliation by Prussia in 1866 and France's collapse in 1940.

Early in this century, the British Navy underwent a series of dramatic and very controversial reforms at the hands of Adm. Sir John Fisher. In his 1923 book "The World Crisis, Part 1, 1911-14," Winston Churchill wrote of these reforms:

"There is no doubt whatever that Fisher was right in nine-tenths of what he fought for. His great reforms sustained the power of the Royal Navy at the most critical period in its history. He gave the Navy the kind of shock which the British Army received at the time of the South African War. After a long period of serene and unchallenged complacency, the mutter of distant thunder could be heard. It was Fisher who hoisted the storm signals and beat all hands to quarters. He forced every department of the Naval Service to review its position and question its own existence. He shook them and beat them and cajoled them out of slumber into intense activity. But the Navy was not a pleasant place while this was going on."

The Pentagon may not be a pleasant place while we re-examine and reform our military services. But, as in Fisher's time, we can hear the distant thunder. It is far less pleasant to confront the new realities for the first time on the battlefield.

The time for reform has come. ■